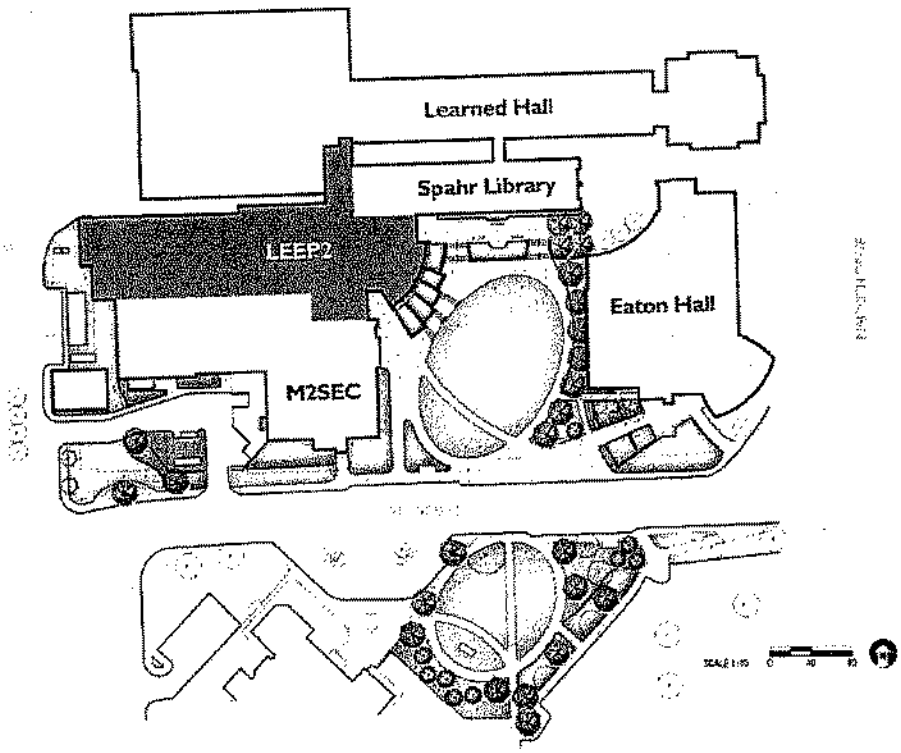
KU THE UNIVERSITY OF KANSAS
Design & Construction Management

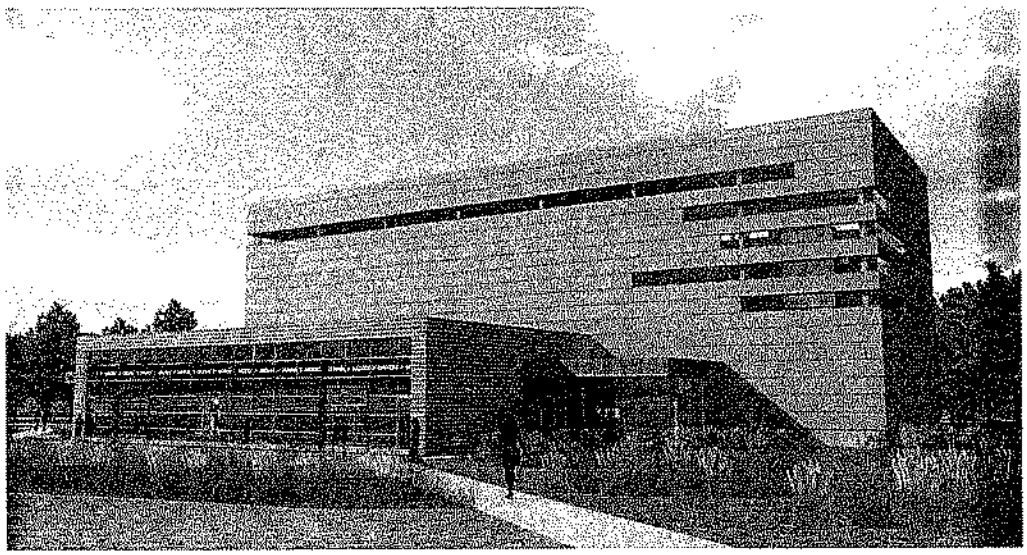
Joint Committee on State Building Constrnctiou
Uuiversity of Kansas – Lawreuce Campus
FY 2015 Capital Improvemeuts Request
November 21, 2013

Capital Improvement Project Status Update

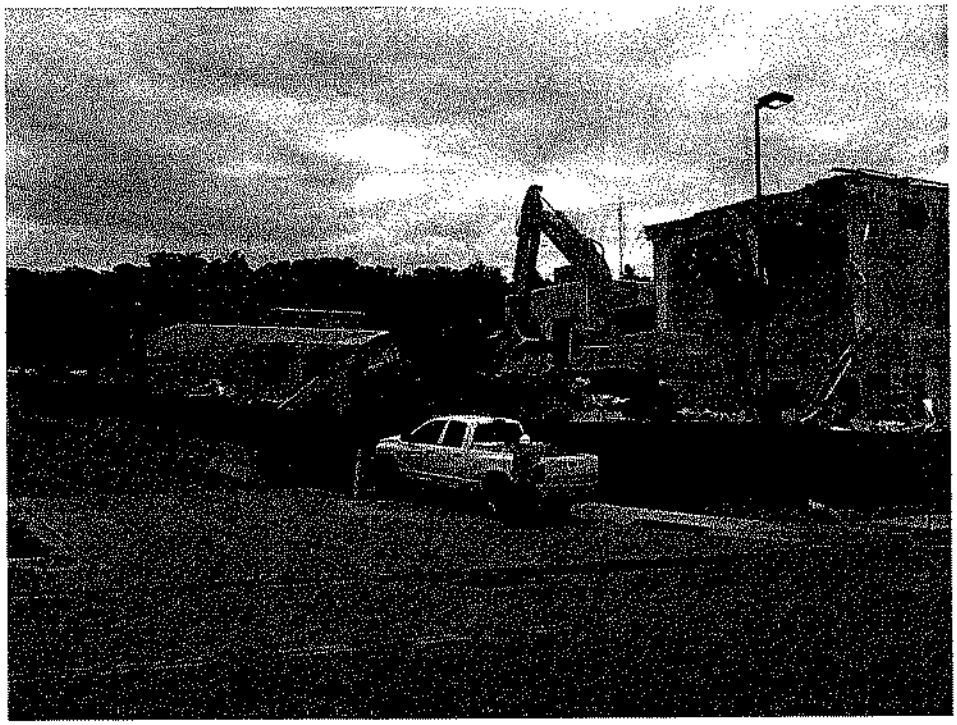
Engiueeriug Expansiou Phase II+ –$80,635,000 - The University wants to extend our thanks to the Legislature for the funding support of the Engineering program expansion. This project was originally approved for FY 2012. Design is complete and construction is underway. There are several components to the project, razing of Burt Hall and relocation of utilities that are complete. Construction of the High Bay portion of LEEP2 project has started and is scheduled to complete in September 2014. The main campus facility is scheduled to complete in June 2015.



KU Learned Hall Engineering Expansion Phase 2



West Campus High Bay Facility



Razing Burt Hall – Summer 2013

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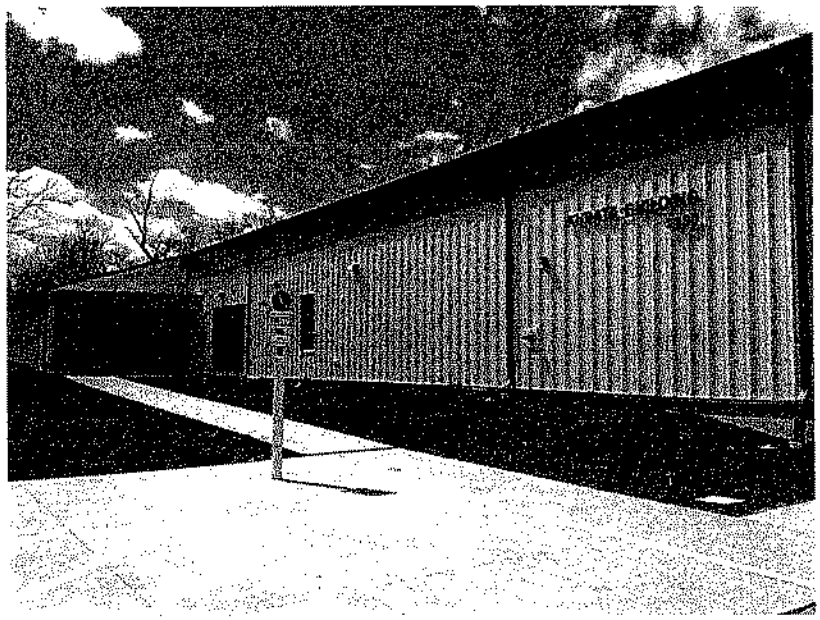
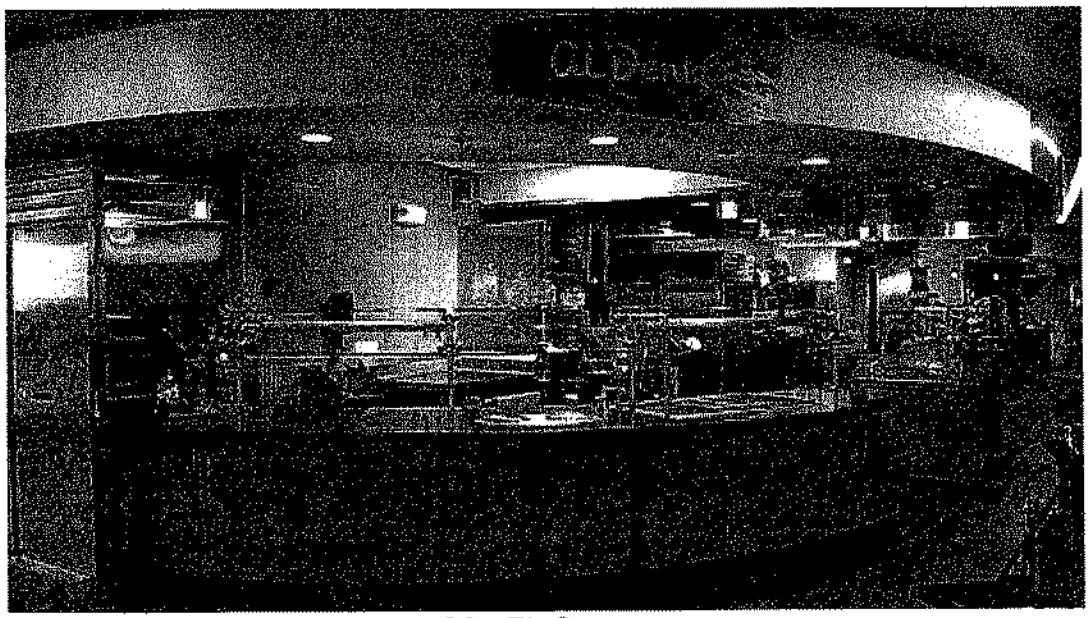
Kurata Thermodynamics Lab Remodel for EHS - $1,400,000 - The project consists of the total renovation of the Kurata Thermodynamics Building to house KU's Office of Environmental Health and Safety (EHS). This is the first phase in preparing for the construction of Engineering Expansion Phase II. EHS was housed in Burt Hall. Construction is complete and EHS has moved in and is fully operational.



Main Entry to Kurata Building

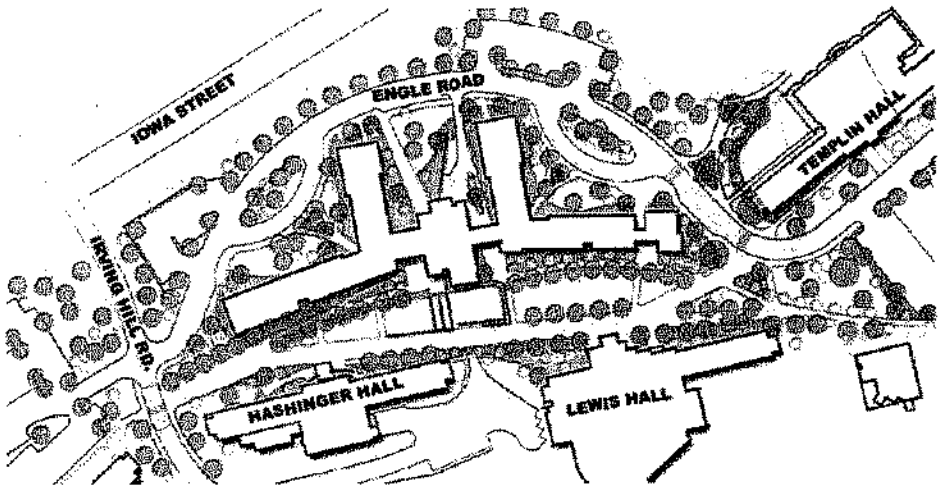
Ekdahl Dining Commons Renovation - $4,800,000 - KU Dining Services has approximately 3,900 meal plan contracts spread among 3 residential dining centers. The project renovated the Servery and entry area at Ekdahl Dining Commons which was built 16 years ago as a food court. The project started after commencement in May 2013 and was completed in early August 2013, just in time for the start of the fall semester.



Mrs. E's Servery

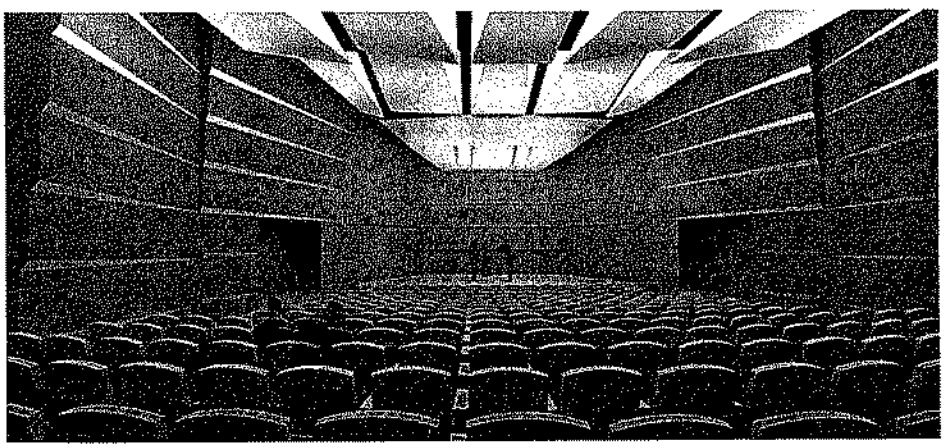
16-3

McCollum Residence Hall Replacement - $47,800,000 – McCollum Hall was built in 1965 and has the capacity of 910 residents. The condition of the building infrastructure and need for major code improvements resulted in the need to do a more comprehensive review of the facility. The market analysis indicated the size of the residential community was not marketable. The project will construct two smaller dorms of approximately 350 beds each. The architect's concept design is complete. The contractor has been selected, construction projected to start in early spring 2014 and construction is scheduled to complete in June 2015.



McCollum Residence Hall Replacement Concept Site Plan

Murphy Hall Swarthout Recital Hall Remodel -$1,450,000 - After many years of wonderful and significant use to the School of Music at the University of Kansas, Swarthout Recital Hall is in need of a major renovation to keep pace with the current demands placed upon it. In the Recital Hall, new seating, accessibility, mechanical, electrical and acoustical improvements would be major elements in a total renovation. In addition, the lighting system, audio system and all finishes would be upgraded. Back stage, a new accessible entry would be created along with new back stage restrooms. The architect has been selected and the schematic design completed. Construction is projected to start in May 2014 and complete in spring 2015



Swarthout Recital Hall Schematic Design Rendering

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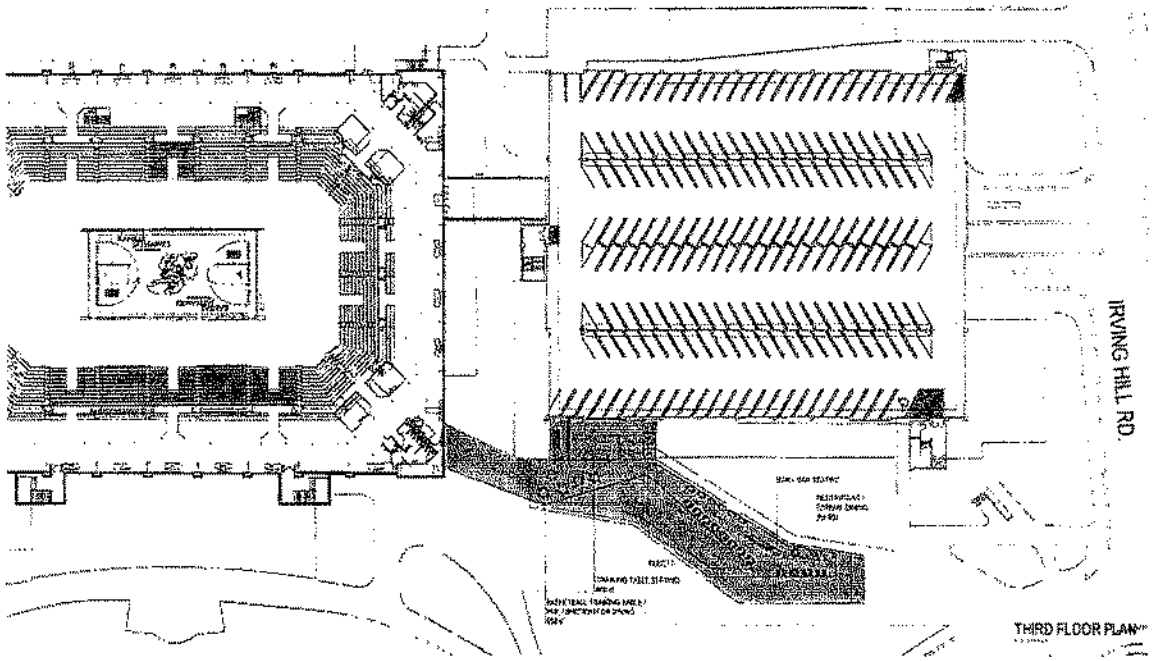
Allen Fieldhouse Addition - $18,000,000 – The Naismith "Rules of Basket Ball" and Student Activity Center Addition will further enhance the Hall of Athletics and provide facilities for students, student athletes, fans and the public. The project includes 27,000 GSF of new space and 14,000 GSF of renovated space in Allen Fieldhouse. Design is underway and schematic design is complete. Construction is projected to start in spring of 2014 and complete fall of 2015.



Concept Site Plan

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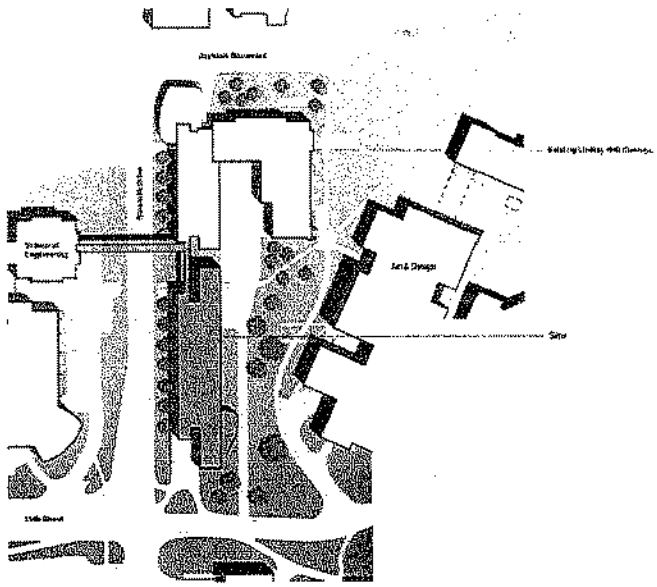
FY 2015 Capital Improvements Request

Science Facility Master Plan - Energy and Environment Center Sonth (Lindley Hall Addition) - $63,590,000 – As one of the initial phases of the Science Master Plan, the South addition provides space for programs that links many projects associated with energy and environment research. The South addition includes 94,700 gsf of expansion on the Lindley Hall site for oil and gas resources programs including teaching and research space. The addition also includes water resources, nano-science which will link the Geology, Petroleum Engineering, Physics and other programs with research initiatives with industry partners.

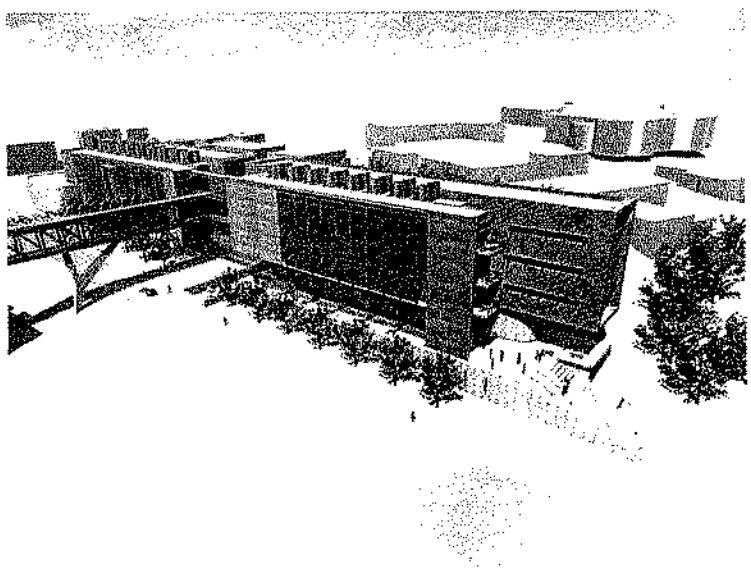
The project will be funded from private gifts and revenue bond.

Proposed Site Plan
Earth, Energy and Environment South



Site Plan of EEE South

Rendering of EEE North and South on site between Lindley Hall and Learned Hall.



EEE North and South Concept Rendering

16-6

Parking Repair and Improvement Projects - $1,000,000 - This is our annual request for funding approval to spend $1,000,000 of parking fee funds to repair pavements and related improvements including new site lighting and associated storm water management. The $1,000,000 per year was the recommended allocation to take care of the deferred maintenance of the parking lots.

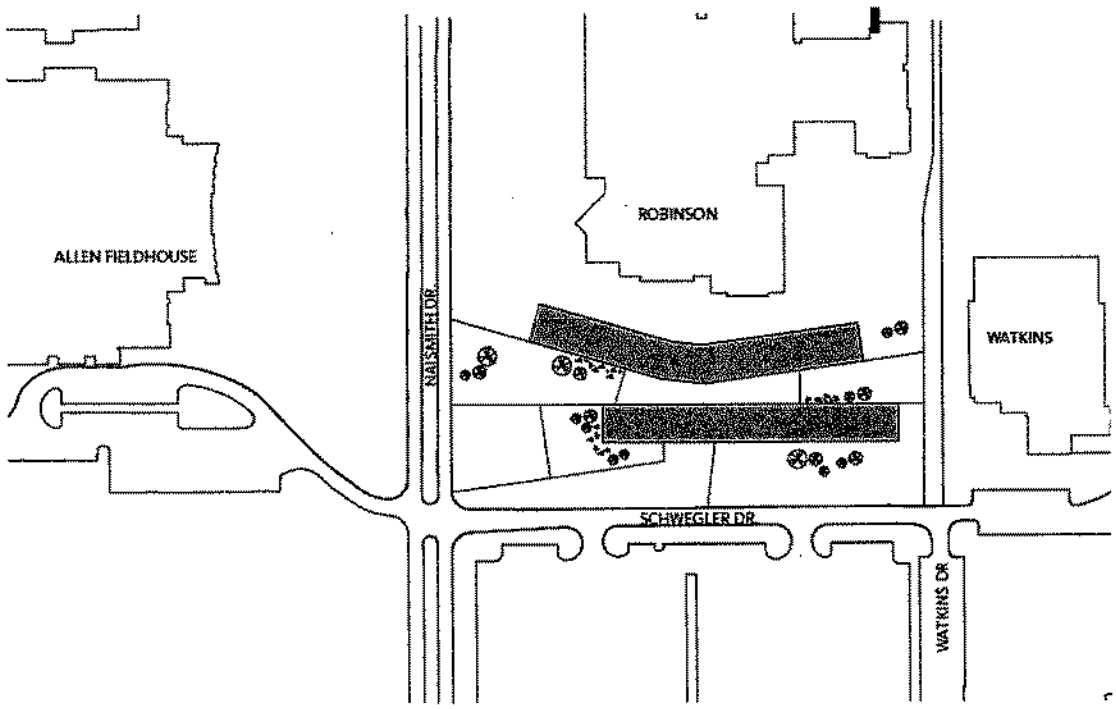
The parking lot projects are parking fee funded.

Amend FY 2014 Capital Improvements Request

New School of Business - $65,740,000 - The KU School of Business is transforming how business students are educated in the 21st century. To compete in a global market for students, faculty and staff, the School of Business leverages the mission and vision to serve the citizens of Kansas and their state and regional industries. The University of Kansas will grow and the School of Business will be a key component of this growth. Growth means higher rankings and higher quality students. This vision will be supported by world-class facilities second to none, aligning physical resources to support the goals of the University of Kansas, School of Business.

The new facility will consist of 166,000 gsf of classrooms and offices for undergraduate and graduate programs. The new facility will be designed to LEED Gold standards resulting in a very sustainable and efficient building.

The project will be funded with revenue bonds issued by the Kansas Development Finance Authority and secured with a combination of private funds and university resources.



New School of Business Concept Site Plan

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Amend FY 2014 Capital Improvements Request

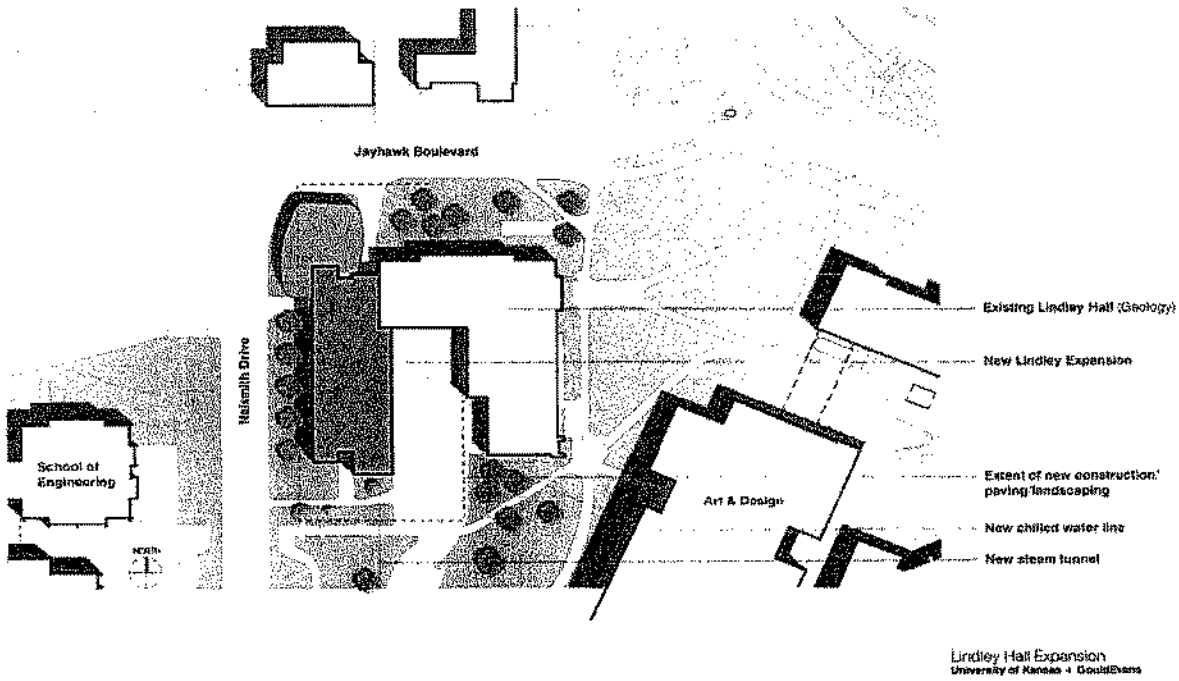
Advise of Capital Improvement Project

Science Facility Master Plan - Energy and Environment Center North (Lindley Hall Addition) - $32,973,000 - The Department of Geology is an academic research, educational, and service unit of the University of Kansas Lawrence campus providing degrees in a variety of geological and geophysical disciplines. It maintains an extensive program of funded research and serves KU, the local and regional community, the nation, and the professions it represents. It has a remarkable history of combining donated, granted and appropriated resources to build strong programs and has a graduate programs ranking in the top ten by US News, and overall is among the top 50 geology programs.

The University of Kansas has identified as two of its strategic initiative the themes "Sustaining the Planet, Powering the World" and "Harnessing Information and Powering the World". At KU interdisciplinary groups are engaged in key collaborative research and education linked to these initiatives. Researchers from KU's department of Geology are working with the faculty in the departments of Geography, Ecology and Evolutionary Biology, Civil and Environmental Engineering, and Chemical and Petroleum Engineering. In addition, many of these researchers are active members or work closely with key research centers including the Kansas Geological Survey, Tertiary Oil Recovery Project, Center for Remote Sensing of Ice Sheets, and Kansas Biological Survey.

The project will construct research laboratories, classroom and office space totaling 42,200 GSF. Design is projected to start in 2014 and complete construction in 2016.

The project will be funded from private gifts.



Proposed Site Plan of EEE North

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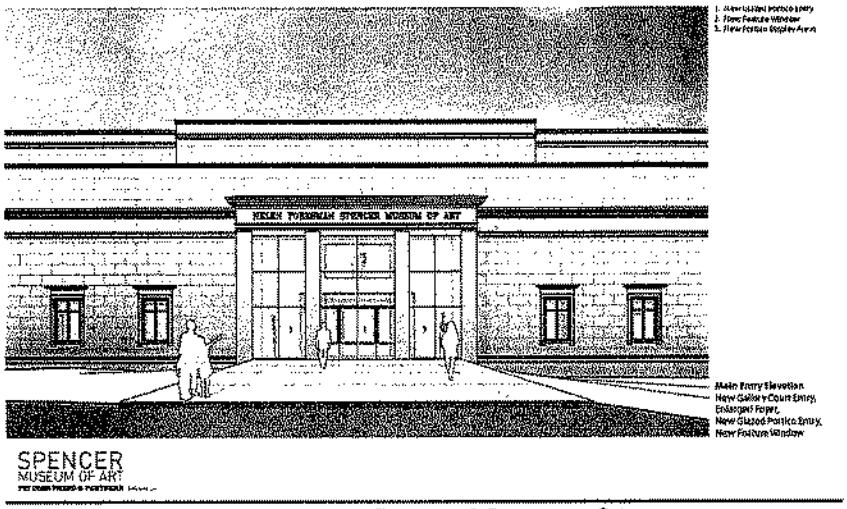
Spencer Museum of Art Phase 1 Improvements - $3,300,000 – The Spencer Museum of Art was built in 1977 and has received very little improvements over the last 36 years. The project will provide various improvements that will improve the visitor experience, improve circulation, provide better access to the collection/exhibits and improve the finishes. The work will include the reconstruction of the entry to the building.

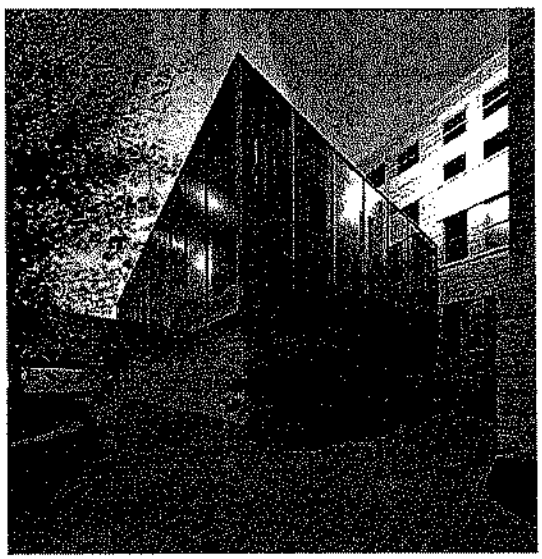
The project is privately funded.



Front Entry to Spencer Museum of Art

Marvin Hall – Forum Addition - $2,080,000 – The School of Architecture program is currently in four facilities, one of them is located off campus. During the accreditation review one of the concerns expressed was the lack of a forum space for the school. The construction of a 2,700 gsf forum space will address the concern. The forum will provide two lecture/jury spaces. KU's Studio 804 has a long record of building facilities of this size. This graduate program will be involved in the design and construction of the facility as a hands on and experiential learning opportunity. The project is anticipated to be LEED Gold certified.

The project will be privately funded.


Concept South and East Elevation

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Watkins Health Center Mechanical, Electrical and Plumbing Improvements - $1,450,000 – Watkins Health Center was built in 1973 and has undergone limited renovation 16 years ago on this 40 year old facility. The mechanical, electrical and plumbing improvements addresses deferred maintenance of the facility. Between the time the architectural program was developed and submitted to the Board of Regents, the cooling tower failed. Emergency replacement of the cooling tower is being handled as a separate project.

The project is funded by Watkins Health Center Student fees.

Oliver Hall – New Fire Sprinkler System - $1,160,000 – Oliver Residence Hall is a ten story facility built in 1966. Housing Department has a planned improvement program addressing fire and life safety improvements in the residence halls. Since this facility is not scheduled for a major renovation, Housing has decided to advance the funding for the installation of a fire sprinkler system. Work is scheduled to begin in the spring 2014 and complete by August 2014.

The project is funded by Student Housing revenue funds.

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Architectural Project Description

KU-Lawrence Science Facility Master Plan – Phase 1

Earth, Energy and Environment North

KU Project No. 042-9348

Date: April 1, 2013

College of Liberal Arts and Sciences
The University of Kansas, Lawrence Campus

Capital Planning and Space Management

Design and Construction Management

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Project Development

Bob Goldstein, Associate Dean, College of Liberal Arts and Sciences

Luis Gonzalez, Chairperson, Professor Geology Department

Jim Modig, University Architect & Director, KU Office of Design & Construction Management

Tom Waechter, Director, Capital Planning & Space Management

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Introduction

The FY 2015 Capital Improvements Request and Five-Year Plan includes the first phase of the University of Kansas Science Facility Master Plan for Active Learning, Discovery, and Outreach, identified as "Science Facility Master Plan, Phase One" throughout the capital projects form. Phase one of this master plan creates a significant opportunity for leveraging private funding to ensure excellence for future generations.

This Science Facility Master Plan identifies classrooms, teaching labs, and research labs necessary to: (1) recruit top faculty, retain current faculty, and secure Foundation Professors who can span units to translate basic science into actionable applications; (2) make faculty and students in the life sciences, in energy and environment research fields, and in nanoscience more competitive for federal grents and industry investments; (3) meet the needs of technology transfer and commercialization that serve industries in our state; and (4) provide students with the interdisciplinary, team-based collaborations in classrooms and research labs that they will encounter in the real world.

The Earth, Energy and Environment Complex is one component of the Science Facility Master Plan. Located near the current Lindley Hall, it will integrate research and teaching facilities from the Department of Geology, Geography, Chemical and Petroleum Engineering, Physics, and Tertiary Oil Recovery Program. It provides a central rallying point for all energy and environment research and teaching on campus. Thus, it creetes a physical entity to support KU's strategic initiative "Sustaining the Planet, Powering the World." Additionally, its technology transfer and outreach center will provide the public face of KU's energy and environment expertise. The focus of this component of the complex will be on outreach and technology transfer from the Kansas Geological Survey and Tertiary Oil Recovery Programs (and other campus entities) to the state of Kansas as well as national and international industries.

EEE North also provides essential linkages and synergies between energy and environmental sciences. Environmental teaching and research concentrates on availability and quality of groundwater, and the effects of climate change on the past, present and future. Energy science and engineering requires integration of environmental research. Energy research and teaching provide the workforce, idees, and technology necessary for Kansas to increase its impact as an energy state. Energy research and teaching in EEE North is broadly integrated to include conventional and unconventional oil and gas, geothermal energy, and nanotechnology to improve solar energy production, electrical energy transmission, and energy storage.

Development of EEE North focuses on: (1) a high capacity lecture environment with designed to encourage engaged leeming of the type shown to improve understanding and retention in the sciences; (2) a university-wide visualization facility; (3) computing labs to be used for Geology, Petroleum Engineering, and Geography instruction; (4) research labs focused on water, hydrocarbon, and CO2 movement through rocks; (5) core sample imaging and scanning for research, teaching, and service to industry; (6) a centralized meeting point for energy and environment researchers; (7) geomicrobiology research and teaching labs for Geology and Engineering; and (8) a stable isotope laboratory broadly used by Geology, Ecology and Evolutionary Biology and industry partners.

The Department of Geology is an academic research, educational and service unit of the University of Kansas Lawrence campus providing degrees in a variety of geological and geophysical disciplines. It maintains an extensive program of funded research and serves KU, the local and regional community, the netion, and the professions it represents. It has a remarkable history of combining donated, granted and appropriated resources to build strong programs and has a graduate programs ranking in the top

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ten by US News. Overall it is in the top 50 geology programs among U.S public universities.

The Department of Geology has been located in Lindley Hall since just after World War II. Between then and 1975 several units moved out of Lindley including an office of the Water Resources Division of the US Geological Survey, the Kansas Geological Survey and the Department of Chemical and Petroleum Engineering. Lindley Hall was renovated in 1982 to house the departments of Geology and Geography. The renovation included installing a new elevator, central air conditioning and new laboratories, renovating some classrooms, laboratories and offices, and bringing the building up to life safety code requirements of that time.

Geology is one of five KU units that are in Lindley Hall and the building contains five general-use classrooms. Geology occupies space in the basement and on the first and third floors. The Department of Geography occupies space on the second and fourth floors of plus a single lab on the third floor and a storage room in the basement. The Invertebrate Paleontology Division of the Natural History Museum occupies part of the basement and the Paleontological Institute of the Biodiversity Research Center occupies part of the first floor.

As the field of Geology has changed over the years, the department's facilities have lagged behind. Facilities must be constructed and renovated to accommodate expansion and to suit the requirements of programs and activities of a modern department with national prominence. The science of geology, like most other technical areas, has greatly changed in the past half century. This existing building, though usable for many purposes, is difficult to adapt to modern research and teaching activities. Although the space available to Geology on west campus has increased in recent years, changes in usage and expansion of the program have spread faculty and students into four separate buildings, and housed research labs in facilities now inappropriate for their use.

Expansion of the program, faculty, additional projects and students addressing environmental and energy issues are all compromised by the lack of space. Most importantly the current facility places limits on the ability to address enrollments and expand the number of graduating students to meet the increased national and international demand in the geosciences.

The Geology Associates Program, a very successful department-based development program begun in 1971, has provided the funds to build excellence in programs beyond what is possible using State funds alone. Departmental efforts to build excellence have brought KU outstanding faculty and state-of-the-art research facilities. These successes have also brought the department to the limit of space in Lindley, making further growth of research problematic. The expansion of Lindley Hall has been e major goal of the Geology Associates Advisory Board for many years. Support for building an addition to Lindley has grown in recent months, now with substantial multi-million dollar commitments. Relying almost entirely on private support, end with current times in the energy industry, now is the best time for fundraising for such a project.

Space in Lindley Hall currently used by Geology includes five teaching laboratories, two instructional and general use computer laboratories, three research computer labs, seven specialized research labs, sample preparation space, library of fossils, rocks and minerals, 21 offices occupied by faculty and retired faculty, two offices occupied by post-doctoral researchers, 11 offices occupied by graduate students (both GTAs and GRAs), two rooms occupied by technical support personnel and additional administrative space.

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The Geology department has successfully expanded to 22 faculty and is currently searching for 2 more, and has retired faculty who have active research programs. It trains over 2,000 students in geology classes each semester, and currently has 106 undergraduate majors and 95 graduate students. The current and future growth of the faculty has enhanced the department's traditional strengths and expanded it into exciting new areas of geology and geophysics to best prepare the current and future students of the department. In the last five years graduate enrollments have increased by 42% and undergraduate enrollments (BS and BA) by 25 %. The KU Department of Geology is striving to support the success of its students, the needs of society, and to make the greatest impact possible on areas of study within the Geosciences.

Geology at KU has increased its vitality and leadership role by integrating new methodologies and recruiting new faculty in emerging fields while still emphasizing the basics. It continues to improve the depth and breadth of curriculum in Geology and Geophysics. The program currently is among the strongest in the nation. In the last ten years, members of KU's program have received more than twenty awards that acknowledge the impact of their research programs.

High standing is evident in *US News and World Reports* top-ten ranking of the sedimentary geology and paleontology programs, a distinction that places KU's program among only a few top universities. Program strengths are in sedimentology, stratigraphy, environmental geology, petroleum geology, paleontology, geochronology, geophysics, hydrogeology, and geomicrobiology. To support both teaching and research, Geology also has a permanent field station in Cañon City, owned by the department, teaching state of the art computer based mapping skills and other field geology skills reinforcing the critical component of field work in the curriculum.

Geology undergraduates fare well upon graduation. Many continue on to graduate school to pursue MS degrees, the working degree in most geoscience careers, and others obtain employment with local (Kansas and KC Metro area) environmental or energy companies, and government agencies (state and federal). Well over 80 % of our graduating MS and PhD students are employed by the energy industry, environmental companies and government, and a small percentage pursue academic careers.

10-10-16

Design Criteria and Goals

The Earth, Energy and Environment North

The University of Kansas has identified as two of its strategic initiative the themes "Sustaining the Planet, Powering the World" and "Harnessing Information and Powering the World". At KU, interdisciplinary groups are engaged in key collaborative research and education linked to these initiatives. Researchers from KU's department of Geology are working with the faculty in the departments of Geography, Ecology and Evolutionary Biology, Civil and Environmental Engineering, and Chemical and Petroleum Engineering. In addition, many of these researchers are active members or work closely with key research centers including the Kansas Geological Survey, Tertiary Oil Recovery Project, Center for Remote Sensing of Ice Sheets, and Kansas Biological Survey.

These researchers work to develop a fundamental understanding of natural processes and earth history. At the same time they find practical and immediate solutions to problems such as energy supply and independence, environmental degradation and restoration, changing climate and its impact on key resources such as water availability and the response of organisms to climate change. These researchers utilize skills from basic field observation to the most sophisticated field and laboratory instrumentation and analytics. The research generates copious amounts of data used to construct and fine-tune the models that help us understand natural processes and stimulate future and past workings of key systems of our planet with KU Geology faculty leaders in harnessing and distributing geologic information.

The College of Liberal Arts and Sciences (CLAS) and the Department of Geology are working with KU Endowment to generate the funding necessary to construct a teaching and research facility to support and enhance these interdisciplinary efforts and increase the throughput of adequately trained scientists needed to meet national demands. In the process of conducting their research these scientists also train the scientific workforce needed for large and small businesses adding value to a key Kansas workforce.

The Earth, Energy and Environment North will add 50,60000 GSF (29,800 NSF) adjacent to Lindley Hall, home to Geology and Geography departments across from Learned/Eaton Hall, home to the School of Engineering, and a short walking distance from Ecology and Evolutionary Biology in Haworth Hall and the physical sciences of Chemistry and Physics in Malott Hall. This proposed EEE facility will immediately impact the activities of at least 18 researchers and over 50 graduate students and expand opportunities for well over 30 researchers and more than 150 graduate students.

The research in key areas of energy and environment at KU has advanced considerably during the last decade. These researchers bring well over $20 million in sponsored research, have collectively acquired over $6 million in instrumentation to support their laboratory and field activities and are currently pursuing over $3 million of additional resources.

Housed in the nearly 70 year old Lindley Hall, spaces for research and teaching suffer from poor levels of water quality, electrical service, HVAC distribution and required ventilation. Expansion of projects and programs is limited by the lack of suitable space to conduct research and promote collaborative efforts.

Research housed at KU's Multidisciplinary Research Building (MRB), a newer lab facility on west campus presents barriers to engagement and new ideas across the Geology faculty, and requires transportation of critical samples between laboratories

dispersed across campus. In addition, suitable facilities for the analysis, including 3-D visualization, of the large datasets generated by this research are now needed. This proposal addresses the physical barriers that limit innovation and cross-disciplinary collaborations intended to support and expand leading edge research.

The Earth, Energy and Environment North is to be configured to maximize the use of space with areas to be used concurrently or sequentially by various projects with coordination provided by strong project management teams. The goal is to enhance research addressing critical issues related to past, present and future environments and climate change, conventional (e.g. hydrocarbons) and alternative energy, extending the life of existing natural resources deposits and developing techniques to find new ones. In addition these projects address limiting environmental degradation and improving restoration, water availability and scarcity, biogeochemistry with emphasis on microbial systems, and the impactful changes in landscape and related concerns for the human condition.

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Space and Program Needs

Key Facilities included in EEE North proposal:

- **State of the Art Auditorium** – a 200+ seat auditorium with synchronous high-definition presentation capabilities
- **Data analysis and visualization suite** – a centralized facility that will provide researchers with state of the art data analysis, modeling , 3D and 4D data visualization. Thase facilities will serve both research and educational missions. The suite will include: The remote sensing and GIS facility; the geocomputing facility for geo-physics, petrophysics and geo-chemical analysis
- **A reconfigurable 3D visualization facility** - an industry standard visualization room for research, education, which could also serve small business in Kansas
- **Two core laboratories** – improvements and centralization of laboratory facilities that serve the multitude of researchers. In addition, space is added to support lab users including the Keck Paleoenvironmental and Environmental Stable Isotope Lab and the Environmental Biogeochemistry Lab
- **Three shared experimental laboratories**: Biogeochemistry Labs; High pressure experimental lab: Micro Imaging Lab including "in progress" imaging capabilities
- **Two shared microscopy rooms** – outfitted to support activities in adjacent labs
- **Field Staging Areas**: much need space for research to deploy and test equipment in preparation for fieldwork.
- Sample storage and processing facility. In addition, space for installation of environmental chambers and other transient equipment is planned.

Additional Geology Department Space

As the Department has grown and incorporated the technological advances that keep it at the forefront of Geology and Geophysics, it has been forced to spread out its facilities and student space ovar many separate buildings across tha KU campus. It currently has expanded to the point in which it now occupies parts of four buildings that are widely spread across campus. Even in multiple locations, space is no longer available to accommodate the growth currently occurring in the program.

This document proposes enhancaments to the program by building an addition to Lindley Hall with the goals to:

- build an infrastructure capable of supporting the modern labs needed for the present work and into the future
- increase research and instructional interdisiciplinary collaborations
- improve the environment to recruit and retain the best faculty and students
- provide appropriate learning facilities, offices and common space for the students
- locate the Dapartment all in one building complex to enhance interactions between faculty and students
- provide space to improve integration of emeritus faculty, visiting faculty, post docs, and Kansas Geological Survey staff
- address future Geoscience needs

Because much of the expansion space will be used to bring the laboratories and offices of faculty and students (now isolated from the main campus and on west campus) back home to Lindley Hall this servas to improve the collective creativity, productivity and accessibility of the faculty both for purposes of the academic day

and for research. Other space will be used for expansion to accommodate growth of the program. Still other space will be used to enhance interactions between the department, Kansas Geological Survey and School of Engineering. Another important goal is to provide additional space for expansion of the faculty, staff, and students over the next 5-10 years and for inclusion of space for visiting scientists, courtesy and emeritus faculty.

EEE North Programs and Activities

The Earth, Energy and Environment (EEE) North at KU will bring together researchers that work on energy independence and sustainability, water quality and resources, and a range of environmental projects relating to global change (past, present and future). KU's EEE will serve as the locus and catalyst for inter- and multi-disciplinary research activities addressing critical issues facing the Midwest as well as national and global issues.

The new facility will increase collaborations among scientists in the departments of Geology, Geography, Ecology and Evolutionary Biology, Chemical and Petroleum Engineering, Civil and Environmental Engineering; support programs in Energy Resources (conventional and alternative), Climate, Atmospheric Sciences, Global Change, Paleoclimatology, Carbon Mitigation/Sequestration, Water Resources Quality and Availability; and provide access to modern geochemical and computational labs housed in this addition to Lindley Hall.

The EEE state of the art core laboratories will provide for chemical and physical analysis supporting numerous projects. The computing facilities will support data processing and modeling activities, a 3D data visualization and manipulation facility, and a collaborative space suitable for data synthesis and analysis to support and foment interdisciplinary research activities. As many of the activities carried out by EEE's researchers are field based, much needed field support will be provided by the multiuser field staging and equipment storage facilities to be provided in a service area of the facility.

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KU also excels in collaborative research linking landscape modeling with climate and water, the latter constituting a critical and limiting resource addressing expanding global population. This analysis serves to couple the stresses of climate change, compromised water supply because of contamination, and increasing demand linked with technological development both in developed and under-developed regions. In addition researcher's expertise and resources are used in various development projects, for example with engineering faculty in construction and highway materials characterization.

Research Activities and Potential Impacts

Plant-Soil-Freshwater Interaction/Biogeochemistry: The investigators in these research areas, both collaboratively and individually, with support from NSF, DOE, and multiple other agencies study the influence of environmental change on the biogeochemical processes that govern nitrogen, carbon, trace element and water fluxes in terrestrial and aquatic ecosystems. Their foci range from microscale changes in nutrient availability as they relate to soil mineralogy and microbial ecology to global-scale perturbations (e.g., changed precipitation and temperature regimes) and resulting geo-, bio-, and atmosphere interactions.

Studies of these processes rely on a variety of molecular biology (enzymes, DNA, RNA) and isotope and trace element geochemical techniques. Such work is critical for ground truthing paleoclimatic indicators in ancient rocks and for evaluating the effects of Earth's future atmospheric composition on its ecosystems' processes, and the feedbacks of those changes to climate. Collectively, the portfolio of research programs and the interactions between them that the facility will support represent

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keystones for bridging our knowledge gaps for predicting Earth's climatic future and for calibrating the planet's paleoclimate.

The Experimental Environmental Biogeochemistry (EEB) Facility is a multidisciplinary, experimental biogeochemisty reseerch facility within the EEE North. The activities include experimental flex space for Earth sciences, including such sub-disciplines as microbiology, plant biology and ecology, and algal and cyanobacterial ecology end physiology, organic chemistry, microbial biogeochemistry. Within this space are laboratories and equipment providing custom-designed controlled experimental capabilities that permit the probing of complex life-rock-atmosphere-water systems, as monitored by quantitative molecular biological, geochemical, and stable isotopic analytical tools. The facilities will also be used to study the use of microorganism to enhance oil and gas recovery, enhance CO2 sequestrations and their use for contaminant degradation or sequestration.

EEE North will relieve key limitations to KU reseerchers productivity. It will increase the physical capacity to assess the impact of environmental change on complex trophic interactions or physiochemical processes. By providing researchers with the ability to conduct experiments at multiple scales -- from micro- to meso- scale -- all while controlling concentretions of key atmospheric constituents, light, humidity, and temperature, the EEB facility will provide novel insights into calibration of paleo or future global-scale climate models, critical biogeochemical process, and to explore the transfer of experimental results to industry pertners. Since the space is intended to be comprised of flexible, modular components, this building will accommodate a diverse array of scientists, even when the makeup of these reseerch groups will change over the coming decades.

EEE North will also support reseerch focused on understanding the impacts of lend cover change and large scale irrigation on local environments as well as atmospheric processes over the immediate region. The EEE North facilities will greatly improve our ability to develop and evaluate land cover and land surface properties datesets for use in climate model simulations. Specific tools used will include remote sensing software and GIS systems to manage and build information sources ebout land cover and soil characteristics. This work is tightly integrated with social science work on farmer decision making under changing climate conditions.

Along with substantial computing resources, the facility will provide workspace for developing models, running simulations, and post-processing model analysis as well as laboratory space to support the collection of field data for water and carbon cycling.

The proposed fecilities will support new interactions and assist in developing common resources across a number of the projects. For example, the facilities would provide an ideal nexus for several of the participants developing a quantitative interdisciplinary approach to modeling the hydrologic cycle that brings together researchers active in atmospheric science, soil science, and surface and ground water hydrology.

A current EPSCoR project has a major component that looks at the surface water balance of Kansas and its relation to groundwater recharge conditions. In addition, the work on farmer decision making has significant implications for the potential longevity of the Aquifer by considering the potential withdrawal rates in the future (Kansas uses proportionally more groundwater than any other Stete).

KU also feels that the resources provided by this project would greatly enhance the program's competitiveness in acquiring future projects. The success of this project would open up significant new areas of enquiry across a number of disciplines,

including better interactions with social sciences to help provide more insight into impacts and human responses.

Water Resources and Aquifers

Researchers at KU have a long history of funding that supports the physical and chemical characterization of surtace water and groundwater, surface water-groundwater interaction, and subsurface transport and remediation of contaminants. Recent faculty hires reinforce this area of expertise. This research at KU is part of a larger effort at quantifying and modeling processes in the global hydrologic and biogeochemical cycles that affect supply of adequate amounts of sufficiently potable water. Water security is threatened by a number of current and projected conditions: climate changes that reduces and/or alters the delivery pattern of meteoric precipitation; deterioration of groundwater quality; deterioration of surface-water because of climate-induced; changes in shallow-groundwater chemistry or because of groundwater overuse altering water-flow paths and thereby bringing poor quality water to streams; increasing demand on all sources of water.

High precision and accuracy of measurements of water quantity and quality are essential to formulating appropriate actions that will limit the impact of these threats to water security. Even as more and higher-resolution remotely-sensed data become available, the need to calibrate those data against field-site conditions becomes more critical to using the data most effectively.

The Lindley Hall addition for EEE North will create a high-precision research environment housing equipment in support of the types of measurements described above, and creating a staging area that will permit rapid deployment of field equipment to capture episodic events.

High Pressure-Temperature and Imaging Facilities

The shared laboratories will enhance current research collaboration and foster new interdisciplinary collaborations. Current projects that involve experimentation with techniques for enhanced oil and gas recovery or for CO2 sequestration will be able to utilize the unique cepabilities of the shared PVT and Imaging facilities. The proposed experimental and imaging equipment, will include the ability to monitor experimental progress in high pressure and temperature cells and even imaging the interactions between chemical or biogeochemical processes and reservoir materials. This unique facility will place Kansas researchers at the forefront of experimental research in this area, allow faculty and students with unique skills to conduct research that will result in faster technology transfer to the private sector.

Geology in the Future

The geologic sciences have depended more and more on utilization of progressively sophisticated analytical facilities, whether it is high-resolution seismology, scanning electron microscopy, mass spectrometry, experimental simulations of natural processes, or other methods. For Geology the future has arrived as it has successfully moved into these more sophisticated, space-intensive endeavors. New options available to its students include:

- Equipment, software and expertise supporting five computer laboratories for students with Macintosh, PC, remote sensing, geophysics workstations, and Geographic Information Systems (GIS) capabilities
- Geochemistry labs including stable isotopes, geochronology, thermochronology, fluid inclusions, organic geochemistry
- Geomicrobiology lab

- Improved technical support staff
- Space freed up in existing Lindley for expanded faculty count and a large number of active emeritus faculty
- New commitments to field training with increased field offerings, field work generally being better supported with on-site equipment and vehicle storage provided in this facility.

The goal of the Department is to creata the best environment to help students develop the skills necessary for them to succeed in careers in the geosciences. Many of the students of today and the future will focus on issues relating to sustaining energy supplies for the world, and focusing on environmental issues related to the future habitability of planet earth. To be prepared for a long and successful career students will need to be prepared for a very broad range of science as the needs and directions of the geosciences change.

Many geology courses include a lab component and much of the space requested will have an instructional and research focus. A large portion of lab instruction in geology involves chemical analysis, experiments, microscopic examination of samples, or computer work. The importance of lab work in geological courses requires a somewhat higher proportion of teaching labs than some other sciences may require when compared to enrollment.

Existing instructional lab spaces in Lindley are dated and in need of significant improvement to air-handling, casework, interior finishes, electrical services, lighting and network capacity. And as a number of activities are moved to the new expansion, the intent is to look at opportunities to renovate existing instructional labs.

To relieve some of the pressure on instructional space, and present an alternative to the more traditional lecture space, a new collaborative learning space for 200 seats is proposed. The space will be equipped with the types of wiraless technology and network capabilities to support high-end interactions in the space and real time connections to sites outside of Lindley and off campus.

Geological research involves the same activities, but frequently requires some restrictions because of the delicate or specialized equipment used or the possibility of contamination. Most research labs are used for instruction in graduate-level coursas and faculty are developing research groups involving graduate students and post-doctoral researchers. Such groups require additional space for their activities, both office space and project space.

Space for modern geology also includes computing capabilities and student access to this technology. The existing computer labs are deficient, designed for other purposes, crowded, poorly configured and conditioned. The Department needs larger computer labs proposed to effectively use peripherals and access expensive shared analytical equipment.

Need for Research Space

To increase the level of research funding and to attract the best faculty and graduate students, Geology will require research faculty and post-doctoral scientists and will need more space for those individuals. Currently, with very little space for additional people, our ability to expand research is limited. Problems in using existing space for modern research facilities include deficiencies in air-handling, electrical and purified water systems appropriate for modern laboratories. Modern laboratories will expand the capabilities for major analytical facilities. Space for ancillary preparation facilities, support space and offices for technicians are also needed.

This arrangement provides high-quality space for a major research function of the Department of Geology but physically separates many members of the Geology faculty and graduate student body from the others. The current isotope geochemistry lab is located in Nichols Hall on west campus, and the groundwater organic geochemisty lab is located in Moore Hall on west campus. As a result 10 out of the 22 current Geology faculty have their laboratories and offices located on west campus, splitting the department, graduate students and laboratory resources.

In recent year major research facilities, including the Keck Paleoenvironmental Isotope Lab, the microbial paleoecology lab, and the mineral-microbe interaction lab were relocated to the Multidisciplinary Research Building on west campus. The Department proposes locating all of these labs in this Lindley Hall addition and freeing space for others on west campus.

Academic Program Growth and Required Space

Geology will continue to grow over the next few decades, with more students taking courses in the discipline and more faculty required to teach them. This is a natural response to a nationally recognized program in energy and environment research and growing national need that exceeds current student production of all US institutions. Current space will permit virtually no growth and at this point there are no funded projects for improvements to add to the availability of classrooms or class labs for Geology instruction.

During a period of increasing needs of faculty and students a teaching lab was converted into four rooms, two for analytical geochemistry research, one faculty office, and one teaching and general-use computer lab. This move has reduced departmental capacity to offer lab sections in undergraduate courses. As enrollment continues to grow, we may need to offer two or three sections of laboratories for our courses, up from the current one or two. Relocating research functions will allow more opportunities for instructional use of these labs.

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Outline of Spaces and Facility Improvements

Five undergraduate teaching and research computer labs in the addition, three for Geology principal courses and two to expand GIS and Remote Sensing research capacity:

- Department of Geology administrative offices
- Research lab space for faculty to include moving faculty currently in west campus labs back to this Lindley expansion.
- Offices for an increased number of GRA's and GTA's and additional office space for post docs in either new or renovated space
- The opportunity to renovate vacated space in Lindley for other office, teaching and research needs

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Space Summary

Earth, Energy, Environment North – Proposed Spaces

Proposed Lower Level		
Utility service entry /mechanical space	1,450	NSF
Field research staging area	1,600	
Mechanical	320	
Walk-in freezer	150	
Shared Geology Lab	725	
Micro-Imaging & P/V/T Lab	575	
Collections/Environ Chambers	5,200	
Subtotal NSF	**10,020**	**NSF**
Proposed First Floor		
Departmental Offices	445	NSF
Conference Room	200	
Graduate Student Support	265	
Lobby	2,000	
Auditorium -- 200 seat	5,200	
Analytical project lab	850	
Project studio	875	
GIS/Remote Sensing Lab	680	
Visualization (Flex Cave)	960	
Subtotal NSF	**11,475**	**NSF**
Proposed Second Floor		
Faculty, Staff Offices & Graduate Student Support	725	NSF
Column experiments chamber	130	
Microscopy	175	
Conference/Meeting	220	
Experimental Environmental Biogeochemistry	655	
Experimental Culture	390	
DNA Preparation	120	
Sample Processing	120	
Biogeochemistry Lab	655	
Lab Support	270	
Subtotal NSF	**3,460**	**NSF**
Proposed Third Floor		
Faculty and Open Office	370	NSF
Graduate Student Support Space	265	
Constant Isotope Composition Chamber	130	
Microscopy	170	
Conference Room	220	
Computer Lab/Server Support	695	
Shared Lab	640	
Environ/Paleo environ Lab	2,085	
Lab support	180	
Cylinder room	70	
Subtotal NSF	**4,825**	**NSF**
Total Proposed NSF	**29,780**	**NSF**
Total Proposed GSF	**50,600**	**GSF**

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Design Standards & Consultant Services

- The consultant team shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM).
  - These standards are available at the DCM website: http://www.dcm.ku.edu/desstds/stds.htm
  - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project. It is up to the consultants to periodically check to see if updated standards have been posted.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual architectural and engineering disciplines:
  - Acoustical Engineer (to evaluate and advise on sound isolation provisions from M/E rooms and equipment, and the acoustical requirements of meeting spaces)
  - Telecommunications System Engineer (must be pre-approved by KU-NTS)
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and as-built sets.
- The University of Kansas is committed to designing and constructing the most energy efficient facilities possible. This is a high priority for the architecture and engineering firms that are working on KU projects. The consulting firms shall prepare cost estimates to provide for this need. During the schematic and design development stages energy conserving measures, drawings and specifications shall be provided for owner's approval.
- Physical or 3D/CAD models, if produced by the consultant to explain the design, shall be delivered to and remain the property of the University.
  - Photo-realistic renderings may be required during the design phase to clearly communicate the proposed design options, for both exterior and interior spaces, and for the Owner's use in media distribution and other purposes.
- Contract: An American Institute of Architects B101 contract form, as amended solely by the University, will be used to contract for these professional services.
  - Copies of this contract template will be provided to each short-listed firm, along with the corresponding A201 General Conditions document that will be issued to the Contractor.

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Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes as listed at the State of Kansas, Office of Facilities and Planning Management (OFPM) website.
  - Code Footprints of the new buildings shall be prepared by the consultant and shall be furnished to DCM for submittal to OFPM on DCM's standard 11x17 code footprint sheets.
  - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase.
  - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- The buildings shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

KU / City of Lawrence Agreement

This project falls within 150' of the perimeter of the University's property, and as such, will be required to comply with the provisions of the KU / City of Lawrence Cooperation Agreement. The project team will be required to assist the University with compliance with those provisions, including but not limited to:

- Reviewing the proposed design with the Neighborhood Advisory Committee, and addressing their concerns to the greatest extent feasible, while fully addressing the University's programmatic needs.
- Preparing impact studies on transportation and pedestrian traffic, noise and storm water.
- KU will provide samples of previous impact studies to use as a guideline for preparing these studies.

Historic Preservation Reviews

The proposed new construction is located within 500 feet of the Chi Omega Sorority, which is a listed historic register property and is within the boundary of the Lawrence campus historic district.

An environs definition has been developed and approved by the Campus Historic Preservation Board (CHPB) and the Lawrence Historic Resources Commission (LHRC) for the Chi Omega Sorority property, which will need to be referenced and a process involving both University and City environs reviews will be required.

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Annual Maintenance & Operating Costs

Maintenance and operating costs funding is proposed to come from a combination of non-state University funding sources, private gifts and revenue bonds. O&M costs will be covered by a combination of non-state University funding sources and private gifts.

The University will endeavor to establish a seperate O&M fund from non-state sources dedicated to this building. The University will provide from its own operating budget additional funds as necessary to cover the remainder of the maintenence each year.

Space Standards & Utilization Analysis

Reallocation of Vacated Space: Approximately 8,700 net square feet of leboratory space vacated in the Multidisciplinary Research Building,

As part of a proposed future project, Moore Hall, and Nichols Hall will be used for additional faculty positions and sponsored reseerch projects to be re-ellocated through the KU Center for Research and the office of the Provost.

The current Geology department office suite will be vacated and reassigned either as graduate student study space and/or anothar edministrative function.

Space to be added with the proposed addition totals approximetely 29,780 net square feet and 50,600 gross square feet.

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Proposed Project Budget

Building Construction Costs						
Building Construction Cost	50,600	GSF @	$425	/GSF	=	$21,505,000
Sitework, Stormwater Retention and Landscaping						$890,000
Infrastructure/Utility Extensions						$820,000
Building Automation Control System						$376,000
Fire Alarm/Security System						$269,000
Voice/Data Requirements	50,600	GSF @	$8.00	/GSF	=	$404,000
Subtotal - Construction Costs						**$24,264,000**
Miscellanaous Costs						
A/E, and outside consultant fees		@	8.25%			$2,002,000
DCM, FPM and project management fees		@	1.20%			$291,000
Site survey, borings, testing						$95,000
Printing, Shipping and Travel Reimbursables						$35,000
Building Commissioning						$98,000
Building Signage						$60,000
Design and Construction Contingency		@	7.50%			$1,820,000
KU Campus Infrastructure Fee		@	3.00%			$645,000
Fixed/Moveable Lab Equipment						$540,000
Classroom Equip/Furnishings						$680,000
Subtotal - Misc. Costs						**$6,266,000**
Total FY 2014 Project Cost						**$30,530,000**
Total Project Cost w/ Inflation to FY 2016	*2*	*yrs @*	*4.00%*	*/year*		***$32,973,000***

The attached program of work requires funding that is being raised based on a currently secured lead gift and additional commitments KU has already confirmed for a total at this point in time of $17 million. A process of approaching other potential donors and fundraising continues to be directed through the Kansas University Endowment Association. As a privately funded project, it is anticipated that this project may move ahead prior to a FY 2015 timeline.

Date: April 1, 2013

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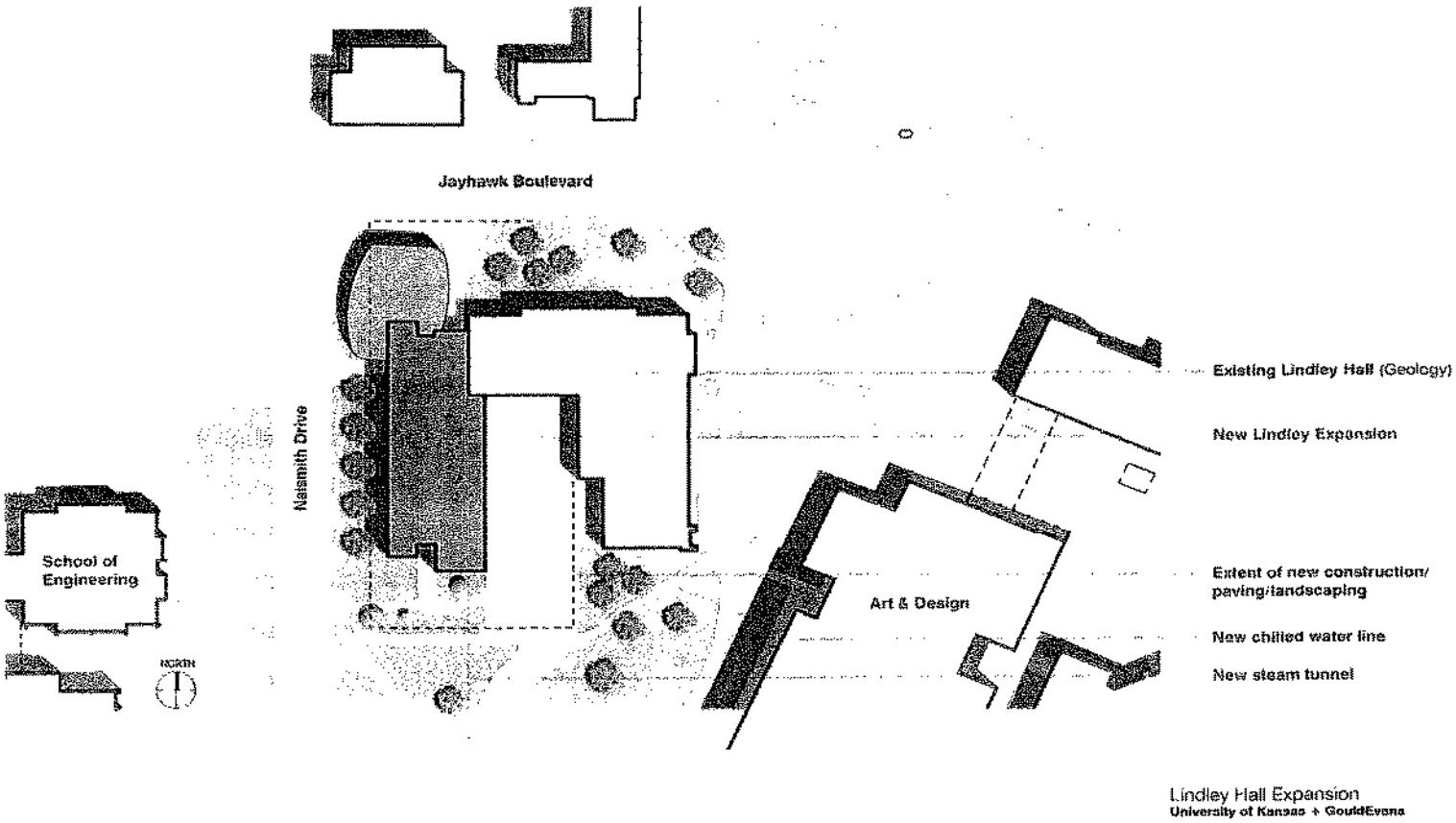
Proposed Project Schedule

January, 2014	Finalize Project Scope and Budget
March, 2014	Complete Documentation for Interviews
May, 2014	Interview & Select Architect/ Engineering Consultants
July, 2014	Negotiate Fees & Start Design
September, 2015	Complete Construction Documents
January, 2016	Bid & Award Construction Contracts
March, 2016	Start Construction
June, 2017	Substantial Completion of Construction
August, 2017	Occupancy for EEEC Research & Instructional Use
Fall, 2017	Conversion/renovation of vacated Lindley and Multidisciplinary Research Building lab space
Spring, 2018	Re-Occupy Multidisciplinary Research Building Labs

Proposed Site Plan



Date: April 1, 2013

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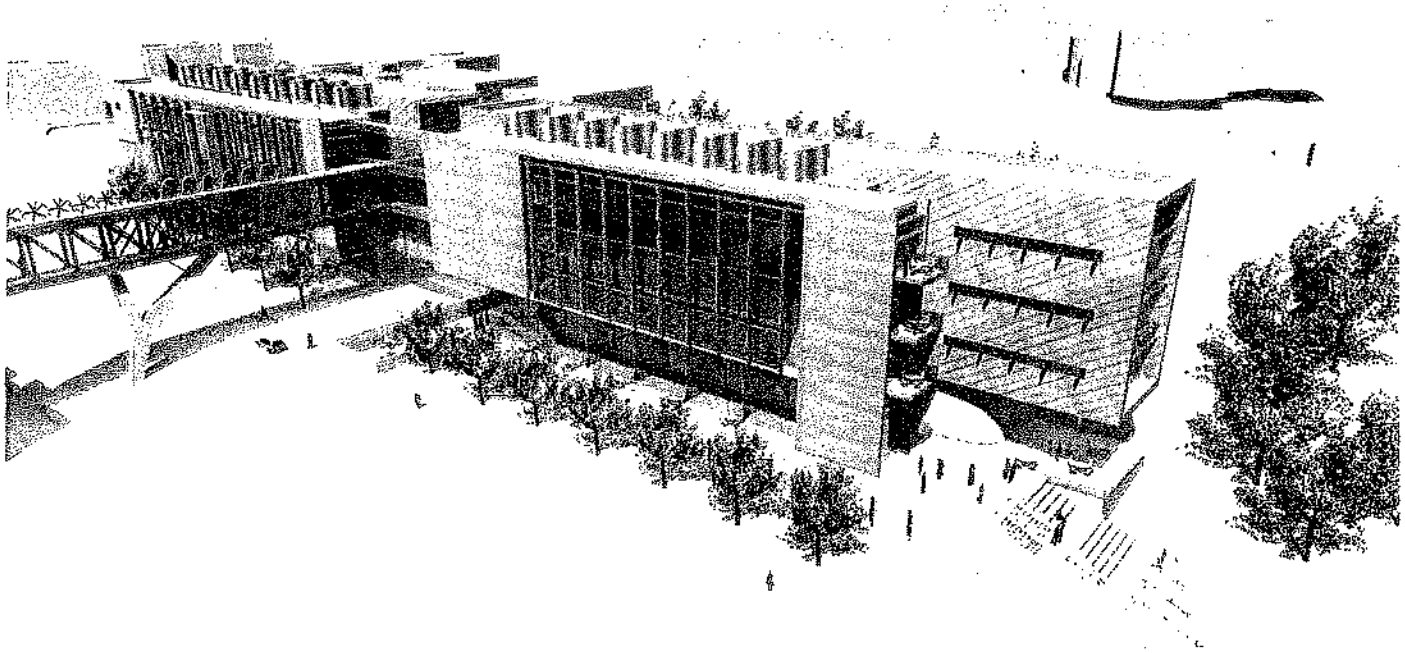
Rendering of EEE North and South on site between Lindley Hall and Learned Hall.



Date: April 1, 2013

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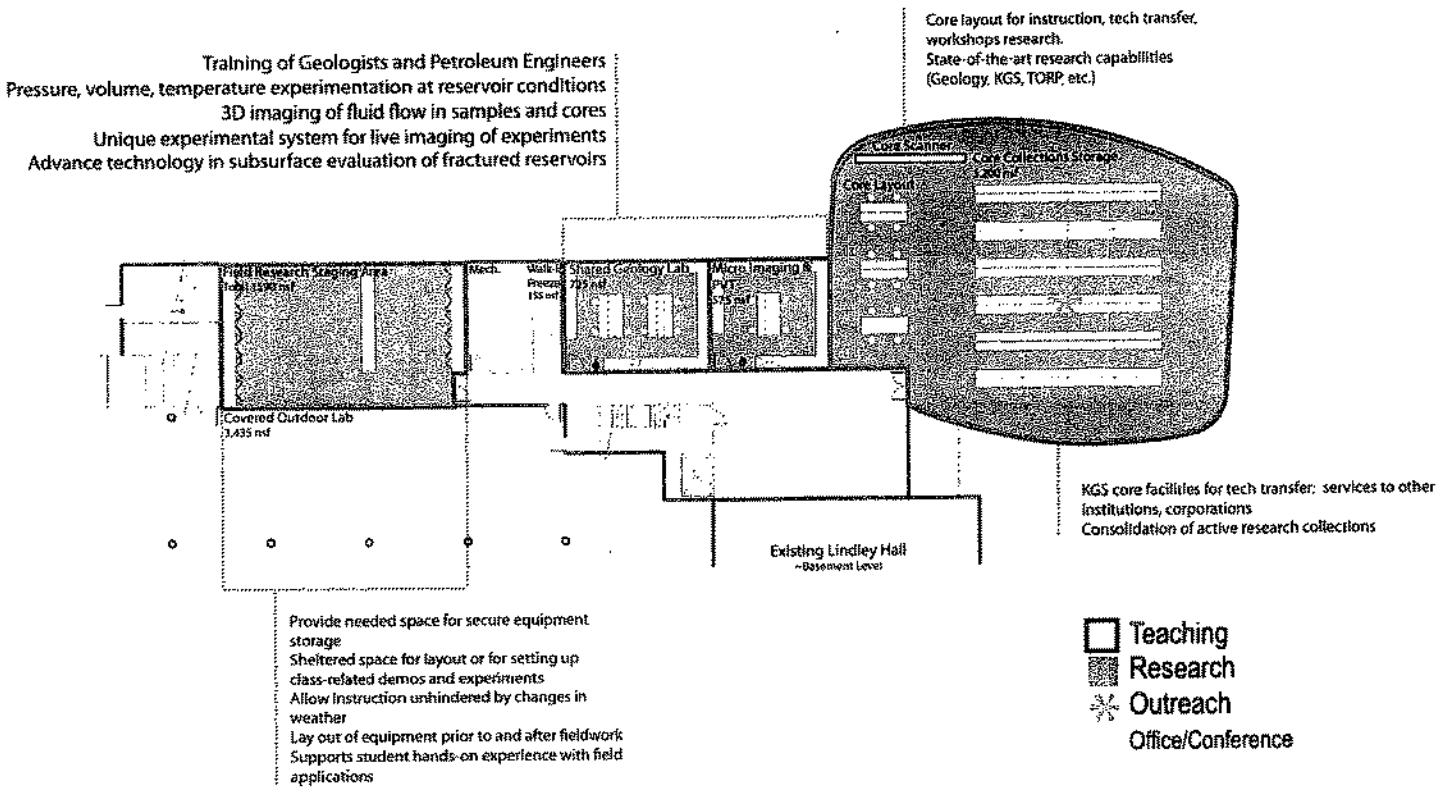
Annotated floor plan for core analysis lab, PVT lab and field research lab.



Earth, Energy and Environment Institute
Lindley Hall Expansion Phase I
University of Kansas + Gould Evans

Date: April 1, 2013

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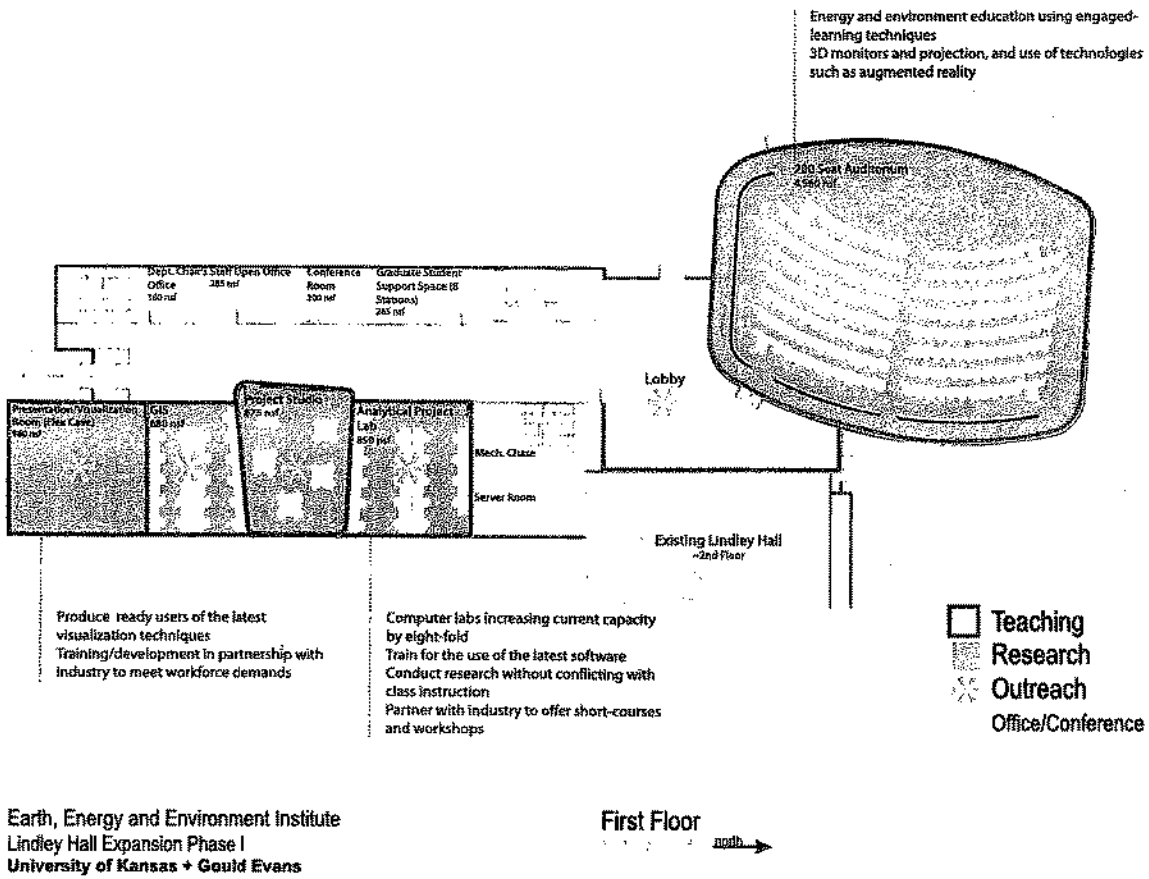
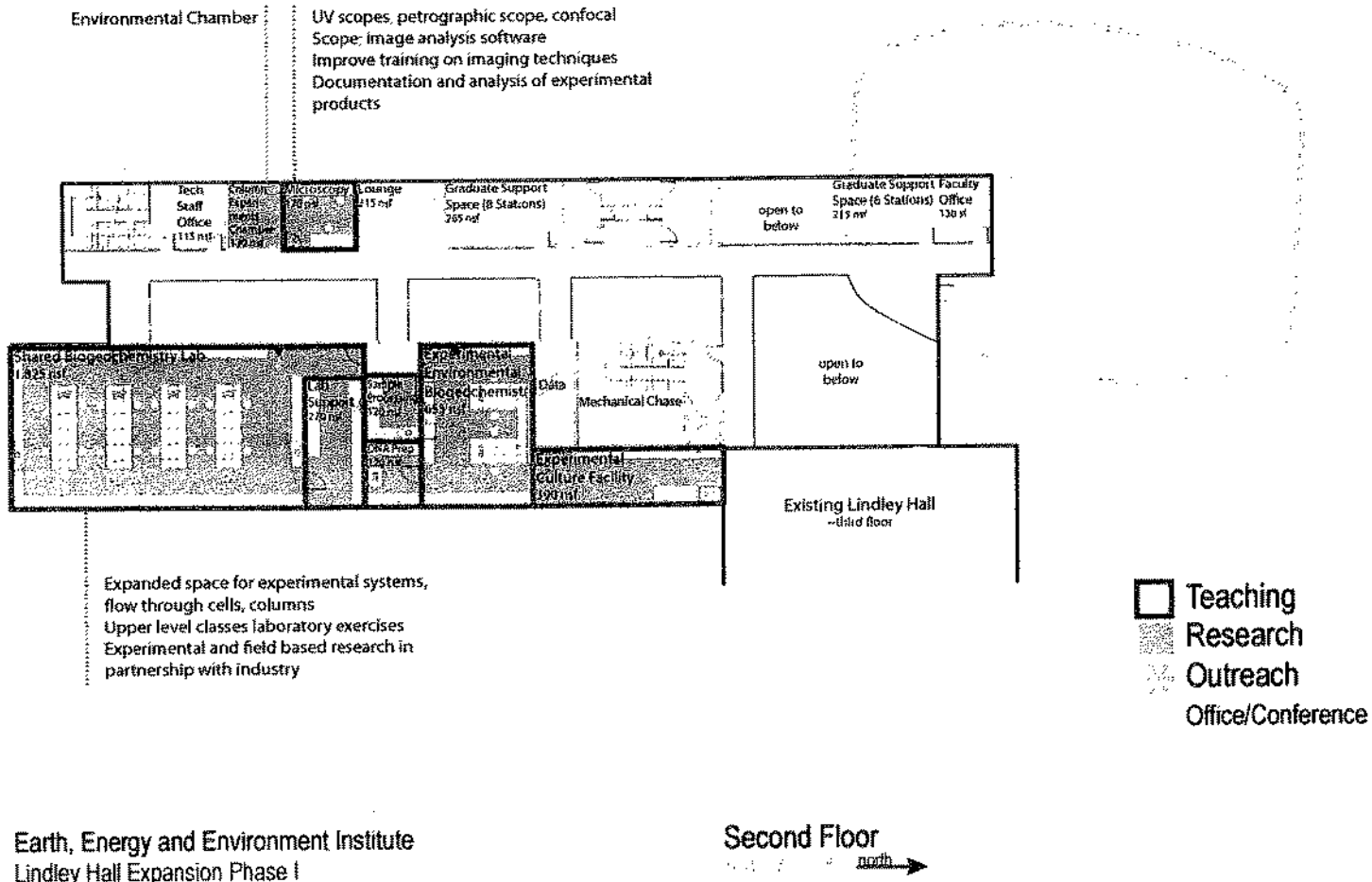
Annotated floor plan for visualization center and large lecture hall on first floor of EEE North.



Date: April 1, 2013

Annotated floor plan for biogeochemistry lab on second floor of EEE North



Date: April 1, 2013

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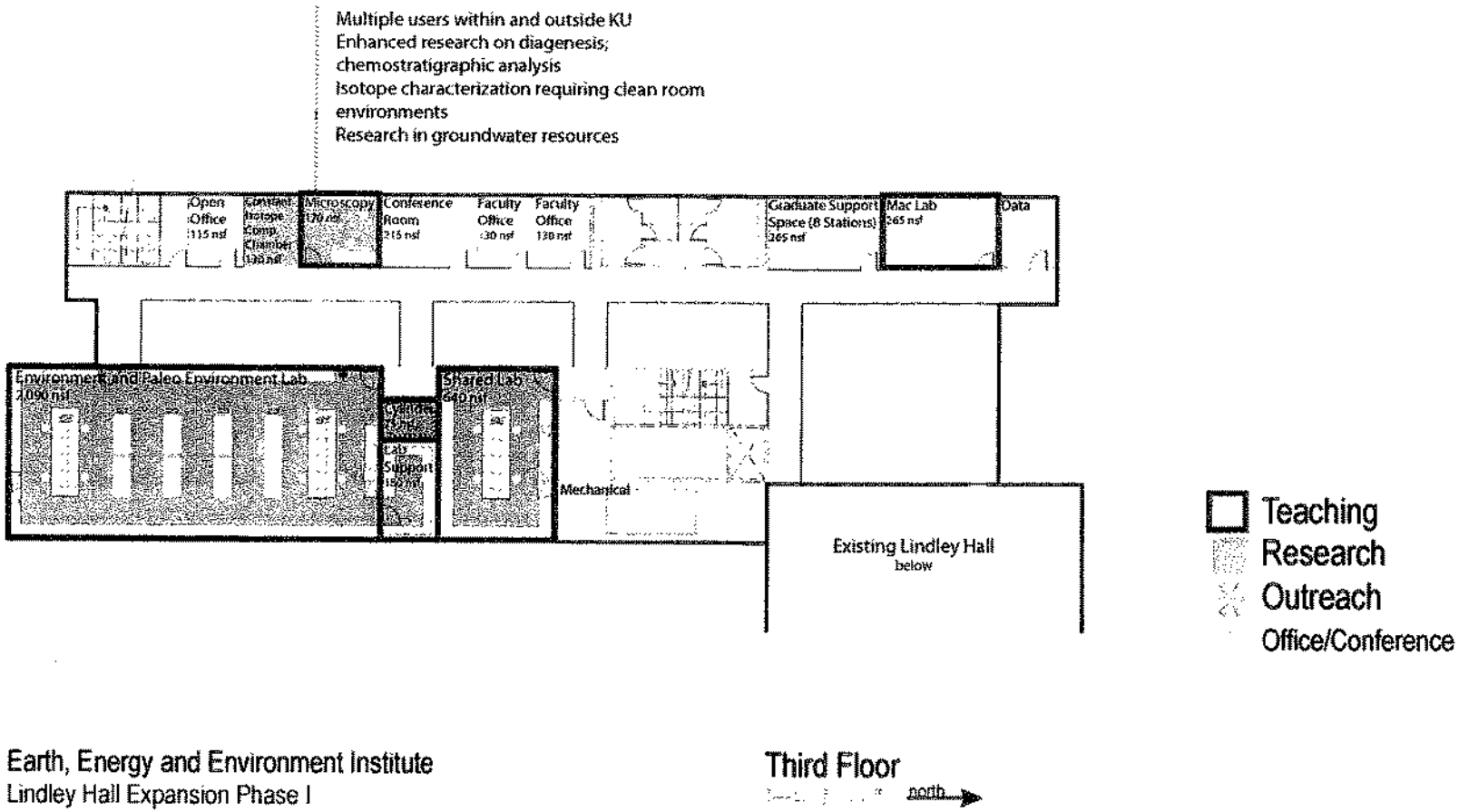
Annotated floor plan for stable isotope laboratory on third floor of EEE North.



Date: April 1, 2013

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Capital Improvement Project Description

KU- Lawrence Science Facility Master Plan – Phase I

Earth, Energy and Environment South

KU Project No. 042-9348

Date: April 1, 2013

Prepared by:

College of Liberal Arts and Sciences
The University of Kansas, Lawrence Campus

Capital Planning and Space Management

Design and Construction Management

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Project Development

Robert Goldstein, Associate Dean, College of Liberal Arts and Sciences

Jim Modig, University Architect & Director, KU Office of Design & Construction Management

Tom Waechter, Director, Capital Planning & Space Management

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Introduction

The **FY 2015 Capital** Improvements Request and Five-Year Plan includes the first phase of the University of Kansas Science Facility Master Plan for Active Learning, Discovery, and Outreach, identified as "Science Facility Master Plan, Phase One" throughout the capital projects form. Phase one of this master plan creates a significant opportunity for leveraging private funding to ensure excellence for future generations.

This Science Facility Master Plan identifies classrooms, teaching labs, and research labs necessary to: (1) recruit top faculty, retain current faculty, and secure Foundation Professors who can span units to translate basic science into actionable applications; (2) make faculty and students in the life sciences, in energy and environment research fields, and in nanoscience more competitive for federal grants and industry investments; (3) meet the needs of technology transfer and commercialization that serve industries in our state; and (4) provide students with the interdisciplinary, team-based collaborations in classrooms and research labs that they will encounter in the real world.

The Earth, Energy and Environment Complex is one component of the Science Facility Master Plan. Located near the current Lindley Hall, it will integrate research and teaching facilities from the Department of Geology, Geography, Chemical and Petroleum Engineering, Physics, and Tertiary Oil Recovery Program. It provides a central rallying point for all energy and environment research and teaching on campus. Thus, it creates a physical entity to support KU's strategic initiative "Sustaining the Planet, Powering the World." Additionally, its technology transfer and outreach center will provide the public face of KU's energy and environment expertise. The focus of this component of the complex will be on outreach and technology transfer from the Kansas Geological Survey and Tertiary Oil Recovery Programs (and other campus entities) to the state of Kansas as well as national and international industries.

EEE also provides essential linkages and synergies between energy and environmental sciences. Environmental teaching and research concentrates on availability and quality of groundwater, and the effects of climate change on the past, present and future. Energy science and engineering requires integration of environmental research. Energy research and teaching provide the workforce, ideas, and technology necessary for Kansas to increase its impact as an energy state. Energy research and teaching in EEE is broadly integrated to include conventional and unconventional oil and gas, geothermal energy, and nanotechnology to improve solar energy production, electrical energy transmission, and energy storage.

Development of EEE North focuses on: (1) a high capacity lecture environment with designed to encourage engaged learning of the type shown to improve understanding and retention in the sciences; (2) a university-wide visualization facility; (3) computing labs to be used for Geology, Petroleum Engineering, and Geography instruction; (4) research labs focused on water, hydrocarbon, and CO2 movement through rocks; (5) core sample imaging and scanning for research, teaching, and service to industry; (6) a centralized meeting point for energy and environment researchers; (7) geomicrobiology research and teaching labs for Geology and Engineering; and (8) a stable isotope laboratory broadly used by Geology, Ecology and Evolutionary Biology and industry partners.

Development of EEE South focuses on: (1) research and teaching labs used for nanoscience of energy production, transmission, and storage; (2) two engaged learning classrooms for expanded enrollments in energy and environment fields; (3) a technology transfer, outreach and conference center focused on industry; (4) research and office space for foundation professors

in climate, geophysics and hydrocarbon reservoir research; (5) new teaching lab space for the expansion of Petroleum engineering; (6) research and teaching lab space for a Petroleum engineering hire focused on fractured reservoirs; (7) an isotope geochemistry lab for geothermal energy research; (8) research labs focused on the chemisty of organic particles in unconventional hydrocarbon systems; (9) a lab research to study remediation of contaminated aquifers; and (10) TORP labs for developing new technologies to improve extraction of hydrocarbons from reservoirs.

The proposal to build EEE South enhances and expands technology transfer and outreach; provides a physical bridge between the School of Engineering and the rest of the campus; makes program connections between energy production and water resources. As a central facility for energy and environment research, this new building will provide critically needed space for energy research and water resource projects that require that engineers and geologists to collaborate on outcomes that link research to industry needs and the next generation of resource management.

The Department of Geology is an academic research, educational and service unit of the University of Kansas Lawrence campus providing degrees in a variety of geological and geophysical disciplines. It has a remarkable history of combining donated, granted and appropriated resources to build strong programs.

The Geology department has successfully expanded to 23 faculty and is currently searching for 1 more, and has retired faculty who have active research programs. It trains over 2,000 students in geology classes each semester, and currently has 140 undergraduate majors and 106 graduate students. The current and future growth of the faculty has enhanced the department's traditional strengths and expanded it into exciting new areas of geology and geophysics to best prepare the current and future students of the department. In the last five years graduate enrollments have increased by 42% and undergraduate enrollments (BS and BA) by 25 %.

High standing is evident in *US News and World Reports* top-ten ranking of the sedimentary geology and paleontology programs, a distinction that places KU's program among only a few top universities. Program strengths are in sedimentology, stratigraphy, environmental geology, petroleum geology, paleontology, geochronology, geophysics, hydrogeology, and geomicrobiology.

The Department of Physics and Astronomy is a strong Department which is self-organized around three general areas of research: 1) Applied Physics (e.g., condensed matter physics and biophysics), 2) High Energy/Nuclear Physics (experimental and theoretical particle physics and nuclear experimental physics), and 3) Astrophysics (astrobiology, astronomy, observational astrophysics, theoretical astrophysics, space and plasma physics). Research is being funded by industry and federal agencies, with current grants from NSF, DOE, DOD, DOJ, and NASA. In the National Research Council survey results, Physics faculty are ranked 7th out of 160 programs for publications per faculty member. The Department of Physics and Astronomy teaches large numbers of undergraduate students, covering approximately 11,500 SCH/year. They have a successful graduate program with approximately 50 highly productive students.

KU has recently built up a critical mass of personnel and infrastructure for a strong renewable energy research program. In particular, this research has been supported by the establishment of an NSF EPSCoR Kansas Center for Solar Energy Research (http://solarenergy.ku.edu/) focused on the Department of Physics and Astronomy. The Center is funded as part of a five-year grant with $20M in federal funds and with an additional $4M in State

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matching funds through the Kansas Technology Enterprise Corporation.

For energy, materials are the foundation of many importent applications. Functional nanoscale materials, such as nanoparticles, nanowires, carbon nanotubes, and graphene, have been recognized as one of the most promising approaches to solve fundamental and practical problems in renewable energy. EEE South strengthens KU's capability in fabrication and analysis of nanostructured materials and devices and represents a critical leap forward in production of renewable energy from solar energy, more effective transmission of electrical energy generated by wind and other sources, and improved energy storage. This program is already strong and growing rapidly in Physics and Astronomy, but is located in substandard space in Malott Hall, physically isolated from other energy researchers. New Spaces in EEE South will greatly enhance this program.

The Petroleum Engineering Program, in the Department of Chemical and Petroleum Engineering, is one of the most rapidly growing programs at KU. It currently has 143 undergraduate majors and current epplicant levels indicate growth to 160. National and State demand for Petroleum Engineers is growing rapidly as the oil and gas industry expands. Within the Department, the Tertiary Oil Recovery Program was created to conduct research to explore tertiary methods to obtain additional oil from reservoirs. Some of TORP's funding comes from the State of Kansas. Funding from the State is supplemented by funding from the U.S. Department of Energy (DOE) and industry. The DOE supplies funding for research contracts, technology transfer to assist independent oil and gas operators and field demonstration projects to demonstrate how technology applications can improve oil and gas production. Industry funding comes in the form of fellowships, grants, partnerships in developing new technologies, and participation in field demonstration projects.

TORP and Petroleum Engineering has an extensive portfolio of research on improving oil recovery from reservoirs. They are developing nanotechnologies to enhance productivity of oil and gas reservoirs that should be drivers of economic development in the State of Kansas. Their tech transfer function served independent producers in the State and enhances their success.

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Students in the Department of Chemical and Petroleum Engineering, and Department of Geology interact extensively in their courses, learning skills directly applicable to the oil and gas industry. Interdisciplinary studies among TORP, the Department of Geology, and KGS are exploring a wide range of avenues related to enhanced oil recovery end CO2 sequestration. The program in EEE South and North provides space for the expansion of the student body in Petroleum Engineering. It also provides interdisciplinary space for students and Petroleum Engineering and Geology to learn together on real-world projects. This learning model leeds the way nationally and has attracted strong national industry support.

As the fields of Earth Sciences, Energy and Environment have changed over the years, the department's facilities have lagged behind. New facilities must be constructed and renovated to accommodate both program expansion and the activities of modern departments with national prominence. Existing Lindley Hall, though usable for many purposes, is difficult to adapt to modern research and teaching activities. Most importantly the current facility places limits on the ability to address enrollments and expand the number of graduating students to meet the increased national end international demand in the geosciences, petroleum engineering, and energy and environmental sciences.

The expansion of Lindley Hall has been a major goal of the Geology Associates Advisory Board for many years. Support for building an addition to Lindley has grown in recent months, now with substantial multi-million dollar commitments. Relying almost

entirely on private support, and with current success in the energy industry, this has proven to be a very fruitful time for fundraising for this project.

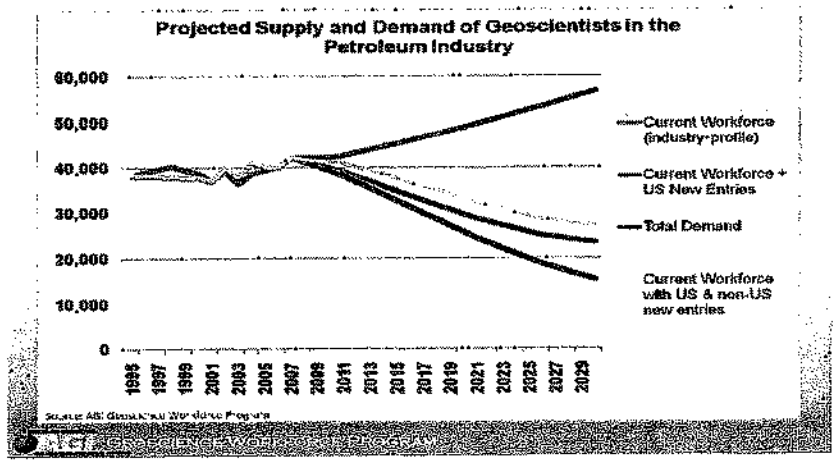
The location provides ready access and a more favorable working relationship for engineering and geology disciplines that typically partner with one another in industry. This project builds the necessary linkages between Petroleum Engineering end Geology to prepare them for the workplace and to make discoveries that would only be possible at the intersection of different disciplines..

The project provides space for new faculty hires in petroleum engineering focused on oil and gas in unconventional reservoirs. Space for foundation hires will enhance KU's ability to hire transformative senior faculty members at the cutting edge of their disciplines. A cluster of hires will be located in the building, with focus on energy production end environmental issues associete with hydrofracturing of unconventional reservoirs.

There is a continued expansion of the demand for students created by the demend for expertise in energy and clean weter. Employment in geoscience-related occupations is expected to grow on average more than 20 percent over 10 years, more then double the average growth of all U.S. occupations. Geology undergraduates fere well upon graduation. Many continue on to graduate school to pursue MS degrees, the working degree in most geoscience careers, and others obtein employment with local (Kansas and KC Metro erea) environmental or energy companies, and government agencies (state and federal). Well over 80 % of graduating MS and PhD students in Geology are employed by the energy industry, environmental companies and government, and a smell percentage pursue academic careers.

Nationally, large numbers of geoscientists are employed in the energy and environmental sectors. Low supply of geosceintists from academic institutions, aging demographic in the workforce, and high demend for gaoscientists in the Petroleum industry will lead to a significant shortfall in trained geoscientists. This presents an opportunity to KU to help fill the void.

Geoscience Workforce



The EEE complex will especially have a near-term economic impact on Kansas in relation to oil and gas. Up until recently, Kansas independent oil producers heve drilled an average of 2,750 wells per year over the past 20 years with an average investment of at least $700 million annuelly (in 2010 dollars.) Companies in Kansas continue to explore and drill in 92 of the state's 105 counties.

Annual state end local taxes paid by the oil and gas sector in Kansas include $939 million as an average annual amount from 1998-2010.(excluding motor fuels and corporate income tex). Revenues generated by new leases to Kansas landowners over the last 2 years is an estimated $2 billion for just one new play in the State, an exemple that the current and future energy industry is intagral in developing and advancing the economy of Kansas.

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Design Criteria and Goals

Earth, Energy and Environment South

The University of Kansas has identified as two of its strategic initiative the themes "Sustaining the Planet, Powering the World" and "Hamessing Information and Powering tha World". At KU, interdisciplinary groups are engagad in key collaborative resaarch and education linked to these initiatives.

Researchers from in energy and environment research integrate KU's Department of Geology Geography, Ecology and Evolutionary Biology, Civil and Environmental Engineering, Physics, and Chemical and Petroleum Engineering. In addition, many of these researchers are active members or work closely with key research centers including the Kansas Geological Survey, Tertiary Oil Recovery Program, Center for Remote Sensing of Ice Sheets, and Kansas Biological Survey.

The Earth, Energy and Environment Center will add 94,700 GSF (52,590 NSF) adjacent to Lindley Hall, home to Geology and Geography departments across from Learned/Eaton Hall, home to the School of Engineering, and a short walking distance from Ecology and Evolutionary Biology in Haworth Hall and tha physical sciences of Chemistry and Physics in Malott Hall. This proposed EEE facility will immediataly impact the activities of at least 18 researchers and over 50 graduate students and axpand opportunities for wall over 30 researchers and more than 150 graduata students.

The research in key areas of energy and environment at KU has advanced considerably during the last decade. Thesa researchers bring well over $20 million in sponsored research, have collectively acquired over $6 million in instrumentation to support their laboratory and fiald activities and are currently pursuing over $3 million of additional resources. In addition, suitabla facilities for the analysis, including 3-D visualization, of the large datasets generated by this research are now needed. This proposal eliminates the physical barriers that limit innovation and cross-disciplinary collaborations intended to support and expand leading edge research.

The College of Liberal Arts and Sciences (CLAS) is working with KU Endowment to generate the funding necessary to construct a teaching and research facility to support and enhance thesa interdisciplinary efforts and increase the throughput of adequately trained scientists and engineers needed to meet national demands. In the process of conducting their research these scientists also train the scientific workforce needed for large and small businesses, adding value to a key Kansas workforce.

Both phases of the Earth, Energy and Environment Center are configured to maximize the use of space with areas to be used concurrently or sequentially by various projects with coordination provided by strong project management teams. The goal is to enhance research addressing critical issues related to past, present and future environments and climate change, conventional (e.g. hydrocarbons) and altemative energy, extending the life of existing natural resources deposits and developing techniques to find new ones.

In addition these projects address limiting environmental degradation and improving restoration, water availability and scarcity, biogaochemistry with emphasis on microbial systems, and the impactful changes in landscape and relatad concerns for the human condition.

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Earth, Energy and Environment South

Additional Geology Department Space

As the Department has grown and incorporated the technological advances that keep it at the forefront of Geology and Geophysics, it has been forced to spread out its facilities and student space over many separate buildings across the KU campus. It currently has expanded to the point in which it now occupies parts of four buildings that are widely spread across campus. Even in multiple locations, space is no longer available to accommodate the growth currently occuring in the program.

This initiative proposes enhancements to the program by building an addition to Lindley Hall with the goals to:

- build an infrastructure capable of supporting the modern labs needed for the present work and into the future
- increase research and instructional interdisciplinary collaborations
- improve the environment to recruit and retain the best faculty and students
- provide appropriate learning facilities, offices and common space for the students
- locate the Department all in one building complex to enhance interactions between faculty and students
- provide space to improve integration of emeritus faculty, visiting faculty, post docs, and Kansas Geological Survey staff
- address future Geoscience needs

Space and Program Needs

Key Facilities included in EEE South Proposal

Because much of the expansion space will be used to bring the laboratories and offices of faculty and students (now isolated from the main campus and on west campus) back home to Lindley Hall this serves to improve the collective creativity, productivity and accessibility of the faculty both for purposes of the academic day and for research. Other space will be used for expansion to accommodate growth of the program. Still other space will be used to enhance interactions between the department, Kansas Geological Survey and School of Engineering. Another important goal is to provide additional space for expansion of the faculty, staff, and students over the next 5-10 years and for inclusion of space for visiting scientists, courtesy and emeritus faculty

- 160 seat energy outreach and technology transfer center/energy classroom
- A 65-seat and 90-seat energy classroom
- Geothermal energy Isotope Geochemistry Lab research group
- Oil shale/organic geochemistry research group
- Research and teaching labs to replace and expand some physics renewable energy labs
- Tertiary Oil Recovery labs and offices
- Teaching labs in support of rock mechanics used for Engineering and Geology courses; lab facilities to instruct on drilling technology
- Physical connections via an overhead walkway connecting to the Engineering complex and illustrating new energy technologies.

16-44

EEE South Programs and Activities

The Earth, Energy and Environment Center (EEE) at KU will bring together researchers that work on energy indapendence and sustainability, water quality and resources, and a range of environmental projects relating to global change (past, present and futura). KU's EEE will serve as the locus and catalyst for inter- and multi-disciplinary research activities addressing critical issues facing the Midwest as well as national and global issues.

The new facility will increase collaborations among scientists in the departments of Geology, Geography, Ecology and Evolutionary Biology?, Chemical and Petroleum Enginearing, Civil and Environmental Engineering; support programs in Energy Resources (conventional and alternative), Climate, Atmospheric Sciences, Global Change, Paleoclimatology, Carbon Mitigation/Sequestration, Water Resources Quality and Availability; and provide access to modern geochemical and computational labs housed in the center.

EEE South will relieve key limitations to KU researchers' productivity. It will increase the physical capacity to assess the impact of environmental change on complex process, and to axplore the transfer of experimental rasults to industry partners. Since the space is intended to be composed of flaxible, modular components, this building will accommodate a diverse array of scientists, even whan the makeup of thase research groups will change over the coming decades. To increase the level of research funding and to attract the best faculty and graduate students, KU will require research faculty and post-doctoral scientists and will need more space for those individuals. Currently, with very little space for additional people, our ability to expand research is limited.

Problems in using existing space for modern research facilities include deficiencies in air-handling, electrical and purified water systems appropriate for modern laboratories. Modern laboratories will expand the capabilities for major analytical facilities. Space for ancillary preparation facilitias, support space and offices for technicians are also needed.

KU also feels that the resources provided by this project would greatly enhance the program's competitiveness in acquiring future projects. The success of this projact would open up significant new areas of enquiry across a number of disciplines, including better interactions with social sciences to help provide more insight into impacts and human responses.

The proposed facilities will support new interactions and assist in developing common resources across a number of projects. For example, the facilities would provida an ideel nexus for interactions between: (1) engineers and geologists, (2) anvironmental scientists and energy scientists, (3) climate researchers and water resaarchers, (4) oil and gas researchers and water researchers, (5) industry and academia, (6) industry and Kansas students, (7) nanotechnology and improved oil recovery, and (8) energy for today, tomorrow, and far into the future.

Tech Transfer, Industry Outreach and Conference Center

As part of a technology transfer and outreach center, conferencing capabilities and a Kansas Geological Survey public outreach office will be developed contiguous to the main building entry, Officas for professional staff, both based on campus and visiting from othar institutions and businesses, will be provided in a Technology Transfer office suite. A Business Center will

support the program activities within the complex and link to outside resources to help manage day-to-day activities.

The conference center will host regional, national and international meetings. Capability will be to host as many as 150 participants. This mediated synchronous conferencing capability will be used for outreach seminars, business communications and a variety of academic and research programs.

Nanoscience for Next Generation Energy

The lower levels of EEE Phase II will support research focused on nanoscience and material science associated with the next generation of alternative energy, solar systems, transmission and storage. Class 100 through Class 10,000 clean room will support production equipment, analytical labs, high vacuum deposition chambers, and support and chemical preparation labs for atomic layer deposition. A lab focused on the use of vibration free optical tables and solar component development will also be included.

A floor of the facility will also support a mixed use of Micro/nano-fabrication and a Nanotech Analytical lab. This materials science and solar energy lab will support a number of researchers currently active in these areas and greatly compromised by their current location in Malott Hall. This lab will also be located across Naismith Drive from the School of Engineering with the intent to generate opportunities for projects that will benefit from shared expertise and with the intent of promoting industry connections and evolving intellectual property based on the next generation of nanoscience solar energy/transmission and storage. Offices and a conference rooms will be provided for these research groups.

Interdisciplinary Engaged Learning Classrooms and Labs

The goal is to create the best environment to help students develop the skills necessary for them to succeed in careers in the in energy and environment. Many of the students of today and the future will focus on issues relating to sustaining energy supplies for the world, and focusing on environmental issues related to the future habitability of planet earth. To be prepared for a long and successful career students will need to be prepared for a very broad range of science as the needs and directions of the technologies change.

Existing instructional lab spaces in Lindley, Learned, and Malott are dated and in need of significant improvement to air-handling, casework, interior finishes, electrical services, lighting and network capacity.

Learning spaces will be equipped with the types of wireless technology and network capabilities to support high-end interactions in the space and real time connections to sites off campus. The EEE facilities will greatly improve our ability to develop and evaluate new learning models with the intent to include two collaborative learning spaces of approximately 65 seats and 90 seats. These rooms will support larger enrollments, be shared with Engineering, Physics, Chemistry and other academic units with a larger seat count to accommodate expanded enrollments. The teaching model to be developed in this facility is intended to allow techniquas important to problem solving and engaged learning to be practiced in rooms designed for small team learning and very robust access to technology.

A class lab for as many as 24 students will replace a dated lab with a capacity of less than half of this for the purpose of teaching techniques important to the assessment of drilling mud and the formation of this material. The intent is to integrate the program across both Geology and Engineering,

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Research Labs for New Faculty

Additional research lab space will be provided for specific disciplines and the faculty positions and graduate student workspace for a number of programs including:

- Projected hires in rock mechanics and fracking technology
- Paleoclimate National Academy foundation hire
- Geophysics foundation hire
- A distinguished faculty position in sedimentation and stratifigraphy
- A new faculty hire in isotope geochemistry, with results that relate to thermal history

Updated Research Labs for Current Faculty

A lab will be created for the purpose of assessing in-situ organic geochemistry by relocating a lab from the Multidisciplinary Research Building on west campus. This lab will enhance KU's ability to do cutting edge research on unconventional oil and gas resources by locating Laser Raman Spectroscopy in appropriate space. Results provide improved methods for locating oil and gas resources in unconventional formations.

Another lab will focus on compound-specific isotopic analysis of organic matter. This sort of research provides clues about the earliest life on earth as well as providing practical results that relate to oil and gas. This lab will be relocated from the Multidisciplinary Research Building on west campus

The current Isotope Geochemistry Lab in Nichols Hall will be relocated into improved facilities. This lab uses various mass-spectrometry techniques to provide absolute dates on mineral formation and thermal events. The lab is the heart of geothermal research on campus, and provides fundamental research results on tectonic processes.

Water Resources and Aquifers

Researchers at KU have a long history of research on groundwater quality and availability.

This climate research at KU is part of a larger effort at quantifying and modeling processes in the global hydrologic and biogeochemical cycles that affect supply of adequate amounts of sufficiently potable water.

Research labs will be relocated from Moore Hall into appropriate space for running experiments on remediation of contaminated aquifers. Many aquifers have been contaminated with organic compounds, which can be cleaned up with appropriate technology. KU can lead the way on developing technologies to improve remediation of contaminated aquifers with this lab.

Tertiary Oil Recovery Program

This program is currently located in less than optimal facilities located in Learned Hall. EEE will provide updated facilities for studying improved recovery techniques for oil and gas. In particular, the program is develop new nanotechnologies useful in generating licensing fees for the University. These technologies could provide greener technologies for fracking, and increase efficiencies for producing oil and gas in Kansas in elsewhere. Because of IP issues, the labs must be in secure locations with limited access.

Academic Program Growth and Required Space

Geology, Petroleum Engineering, and nanoscience for renewable energy will continue to grow over the next few decades, with more students taking courses in the discipline and more faculty required to teach them. This is a natural response to a nationally

recognized program in energy and environment research and growing national need that exceeds current student production of all US institutions. Current space will permit virtually no growth.

Impact of the Earth-Energy-Environment Complex

This proposed arrangement provides high-quality space for a major research function at KU .The project frees space for others on west campus. The current Isotope Geochemistry Lab is located in Nichols Hall on west campus, and the groundwater organic geochemisty lab is located in Moore Hall on west campus. Compound specific isotope labs and Raman labs are located in the Multidisciplinary Research Building. The Tertiary Oil Recovery Program is located in Learned.. With completion of EEE South all facilities will be housed in contiguous space, freeing up space elsewhere on campus.

Additional advantage of the construction of EEE North and South include:

- creates facilties to make geology, engineering, and nanoscience competitive for grants/faculty and students.
- outreach and technology transfer bring in new research from industry – national and international prominence
- appropriate space for technology development brings in licensing fees and creates new industries in Kansas
- available space for recruiting foundation professors
- interdisciplinary focus promotes new research approaches
- keeps student in the sciences and helps with workforce
- promotes economic development in the Kansas energy and water based economy

Building the next generation of working relationships for faculty and associated graduate students in close proximity to the instructional and outreach space within the same facility will expand KU's ability to share leading edge insights into the geoscience program where enrollments and jobs in a variety of related sectors continue to be in high demand.

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Space Summary

Earth, Energy and Environment Center – Proposed Spaces

Proposed Lower Level

Class 100 Production Equipment Lab	490	NSF
Class 1000 Production Equipment Lab	985	
Class 1000 Production Equipment Lab	350	
Class 10,000 Analytical Lab	2,115	
Solar Lab	900	
Computer Equipment	250	
Atomic Layer Deposition Chemical Preparation	450	
Class 10,000 High Vacuum Laser Deposition Lab	850	
Clean Room Mechanical Equipment/Access Corridors	3500	
Faculty PI offices	980	
Administrative Support/Reception	320	
Conference/Group meeting	450	
Development/Analytical/Computer Modeling	450	
GRA/Post Docs (up to 15 positions)	750	
Nano fab positions/Analytical Positions	400	
Subtotal NSF	**13,240**	**NSF**

Proposed First Floor

Collaborative Learning Space	2700	NSF
Collaborative Learning Space	2700	
Conference/Group Meeting Rooms	320	
Administrative Support/Reception	450	
Micro/Nano fabrication and Nanotech Analytical Facility	1600	
Office (4 full time staff)	520	
Conference	270	
Subtotal NSF	**8560**	**NSF**

Proposed Second Floor

Business Center office	900	NSF
Technology Transfer office	900	
Synchronous Conferencing	900	
Industry Outreach Conference Center	4200	
KGS Center/Building Reception	900	
Subtotal NSF	**7,800**	**NSF**

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Proposed Third Floor

Drilling Mud/Formulation Lab	1800	NSF
Rock Mechanics/Hydraulic Fracking Teaching and Research	1800	
National Academy Foundation hIre	3500	
Office (4 faculty/staff offices)	520	
Conference	270	
Subtotal NSF	**7,890**	**NSF**

Proposed Fourth Floor

Dating/Geothermal Energy Lab	3500	NSF
Insitu-Organic Microanalysis Lab	600	
Distinguished Faculty Hire	2800	
Office	520	
Conference	270	
Subtotal NSF	**7,690**	**NSF**

Proposed Fifth Floor

Nano-fracking Fluid Lab	1400	NSF
Conformance Control Lab	300	
Conductivity Cell Lab	300	
Fluid Clean-up Lab	600	
CO2 Enhanced Oil Recovery Lab	600	
Substrate Fluid Composition Lab	420	
KGS Position from Moore Hall	1500	
Organic Bio-Marker Lab	1500	
Office (4 offices @ 130 sqft each)	520	
Conference	270	
Subtotal NSF	**7,410**	**NSF**
Total Proposed NSF	**52,590**	**NSF**

In addition a proposed elevated pedestrian walkway to connect level 4 of the EEEC Ph. 2 addition to the east end of Learned Hall has been envisioned.

Walkways between EEEC Ph. 1 and 2 are also included in the total area of space to be constructed.

Pedestrian Bridge Connections to Learned	1500 nsf
Walkway connections between EEEC Ph. 1 & 2	900 nsf

16-50

Design Standards & Consultant Services

- The consultant team shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM).
  - These standards are available at the DCM website: http://www.dcm.ku.edu/desstds/stds.htm
  - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project. It is up to the consultants to periodically check to see if updated standards have been posted.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual architectural and engineering disciplines:
  - Acoustical Engineer (to evaluate and advise on sound isolation provisions from M/E rooms and equipment, and the acoustical requirements of meeting spaces)
  - Telecommunications System Engineer (must be pre-approved by KU-NTS)
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and as-built sets.
- The University of Kansas is committed to designing and constructing the most energy efficient facilities possible. This is a high priority for the architecture and engineering firms that are working on KU projects. The consulting firms shall prepare cost estimates to provide for this need. During the schematic and design development stages energy conserving measures, drawings and specifications shall be provided for owner's approval.
- Physical or 3D/CAD models, if produced by the consultant to explain the design, shall be delivered to and remain the property of the University.
  - Photo-realistic renderings may be required during the design phase to clearly communicate the proposed design options, for both exterior and interior spaces, and for the Owner's use in media distribution and other purposes.
- Contract: An American Institute of Architects B101 contract form, as amended solely by the University, will be used to contract for these professional services.
  - Copies of this contract template will be provided to each short-listed firm, along with the corresponding A201 General Conditions document that will be issued to the Contractor.

Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes as listed at the State of Kansas, Office of Facilities and Planning Management (OFPM) website.
  - Code Footprints of the new buildings shall be prepared by the consultant and shall be furnished to DCM for submittal to OFPM on DCM's standard 11x17 code footprint sheets.
  - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase.
  - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- The buildings shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

KU / City of Lawrence Agreement

This project falls within 150' of the perimeter of the University's property, and as such, will be required to comply with the provisions of the KU / City of Lawrence Cooperation Agreement. The project team will be required to assist the University with compliance with those provisions, including but not limited to:

- Reviewing the proposed design with the Neighborhood Advisory Committee, and addressing their concerns to the greatest extent feasible, while fully addressing the University's programmatic needs.
- Preparing impact studies on transportation and pedestrian traffic, noise and storm water.
- KU will provide samples of previous impact studies to use as a guideline for preparing these studies.

Historic Preservation Reviews

The proposed site for new construction is located within 500 feet of the Chi Omega Sorority, which is a listed historic register property and is adjacent to the boundary of the Lawrence campus historic district.

An environs definition has been developed and approved by the Campus Historic Preservation Board (CHPB) and the Lawrence Historic Resources Commission (LHRC) for the Chi Omega Sorority property, which will need to be referenced and a process involving both University and City environs reviews will be required.

16-52

Annual Maintenance & Operating Costs

Funding is proposed to come from a combination of non-state University funding sources, private gifts and revenue bonds.

Operating & maintenance costs will be covered by a combination of non-state University funding sources and private gifts. The University will endeavor to establish a separate O&M fund from non-state sources dedicated to this building. The University will provide from its own operating budget additional funds as necessary to cover the remainder of the maintenance each year.

Space Standards & Utilization Analysis

Space to be added with the proposed addition totals approximately 52,590 net square feet of building space and 94,700 gross square feet. Connecting bridges/links between EEEC Ph. 1 & 2 and to Learned Hall are included in the gross area currently budgeted in the project for a FY 2016 start.

Reallocation of Vacated Space: Approximately 2100 net square feet of laboratory space vacated in the Multidisciplinary Research Building by the move of the Raman laser lab and accompanying faculty research space will be made available for re-occupancy, most likely to be occupied by Pharmacy faculty that are part of a future hire.

As part of a proposed future project, space vacated in Moore Hall, and the Nichols Hall will be used for additional faculty positions and sponsored research projects to be re-allocated through the KU Center for Research and the office of the Provost. Current pressure to continue to expand space for engineering programs is anticipated at Nichols Hall.

Smaller allocation of space made available in Lindley Hall will be converted to department office suite will be vacated and reassigned either as graduate student study space and/or another administrative function.

Proposed Project Budget

Building Construction Costs						
Building Construction Cost	94,700	GSF @	$445	/GSF	=	$42,141,000
Sitework, Stormwater Retention and Landscaping						$1,500,000
Infrastructure/Utility Extensions						$850,000
Building Automation Control System						$843,000
Fire Alarm/Security System						$611,000
Voice/Data Requirements	94,700	GSF @	$8.00	/GSF	=	$757,000
Subtotal - Construction Costs						**$46,702,000**
Miscellaneous Costs						
A/E and other special consultant fees		@	8.85%			$4,133,000
DCM, FPM and Project Management Fees						$560,000
Site, survey, borings and testing						$135,000
Building Commissioning						$466,000
Building Signage						$70,000
Printing, Shipping and Travel Reimbursables						$45,000
Design and Construction Contingency		@	7.50%			$3,503,000
KU Campus Infrastructure Fee		@	3.00%			$1,264,000
Fixed/Moveable Lab Equipment						$800,000
Classroom Equip/Furnishings						$1,200,000
Subtotal - Misc. Costs						**$12,178,000**
Total FY 2015 Project Cost						**$58,880,000**
Total Project Cost w/ Inflation to FY 2017	*2*	*yrs @*	*4.00%*	*/year*		***$63,590,000***

Funding being raised based on a currently secured lead gift and additional commitments to KU has already generated a total at this point in time of $17 million. A process of approaching other potential donors and fundraising continues to be directed through the Kansas University Endowment Association. With a privately funded component to this project, it is anticipated that this project will still require at least a 50% contribution outside of private funds for a FY 2018 timeline to begin selection of a project design firm.

16-54

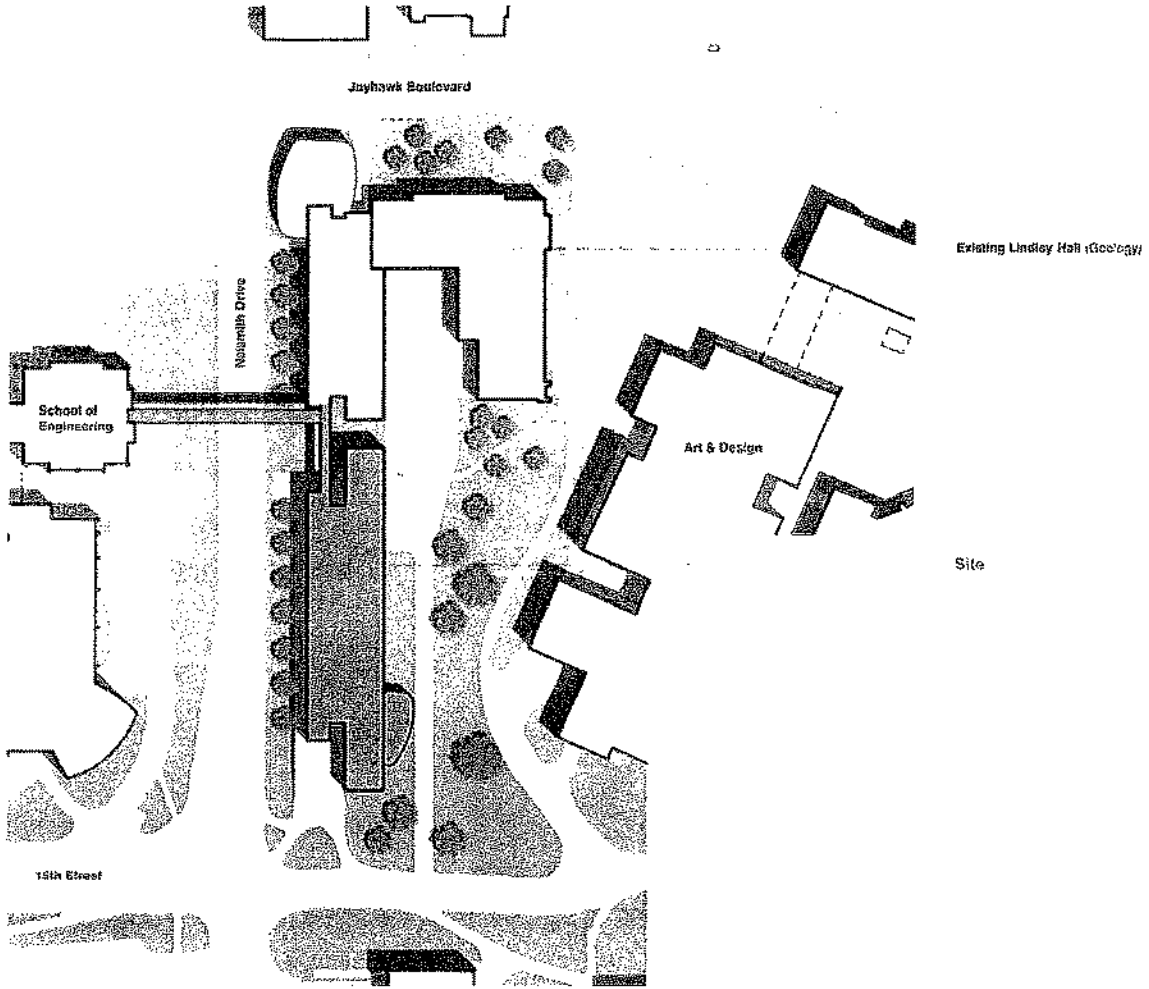
Proposed Project Schedule

July, 2014	Finalize Project Scope and Budget
September, 2014	Complete Documentation Advertise for Interviews
November, 2014	Interview & Select Architect/Engineering Consultants
January, 2015	Negotiate Fees & Start Design
April, 2016	Complete Construction Documents
July, 2016	Bid & Award Construction Contracts
August, 2016	Start Construction
November, 2017	Substantial Completion of Construction
January, 2018	Occupancy for EEE Center Ph. 2 for Research, Outreach & Instructional Use
Summer, 2018	Conversion/renovation of vacated space in Lindley, Nichols and Moore Halls
Fall, 2018	Re-occupancy of Multidisciplinary Research Building Labs

16-93

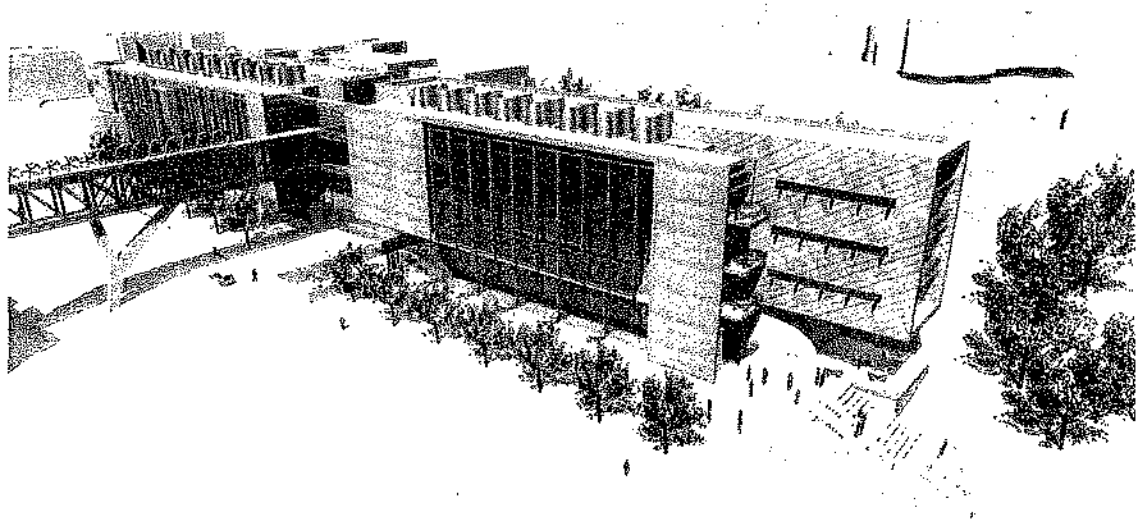
Proposed Site Plan

Earth, Energy and Environment South



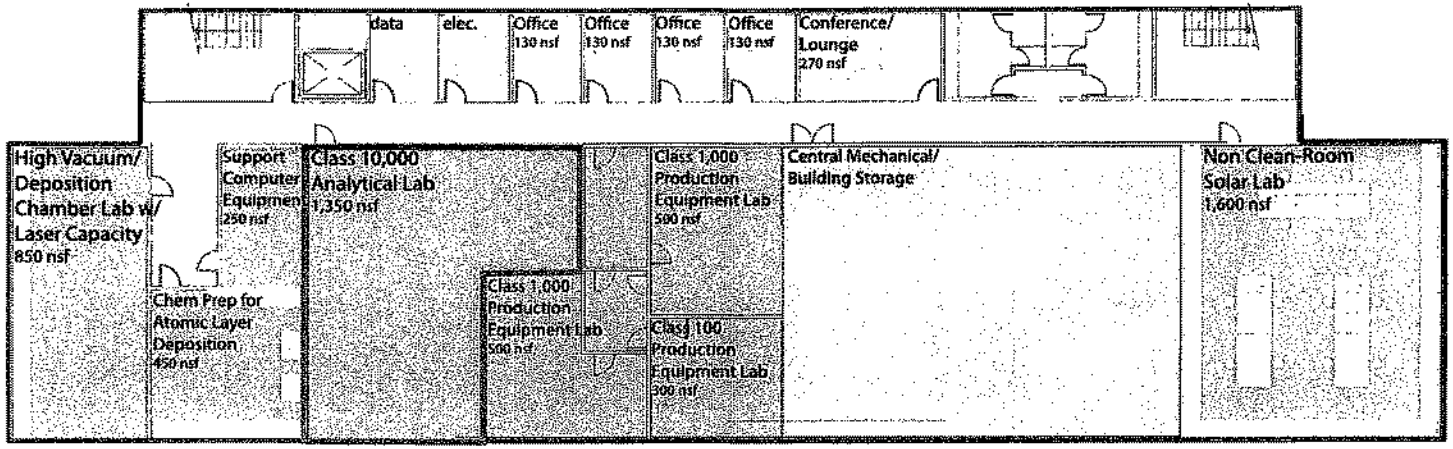
16-56

Rendering of EEE North and South on site between Lindley Hall and Learned Hall.



116-57

Annotated floor plan for nanoscience space on lower floor of EEE South.



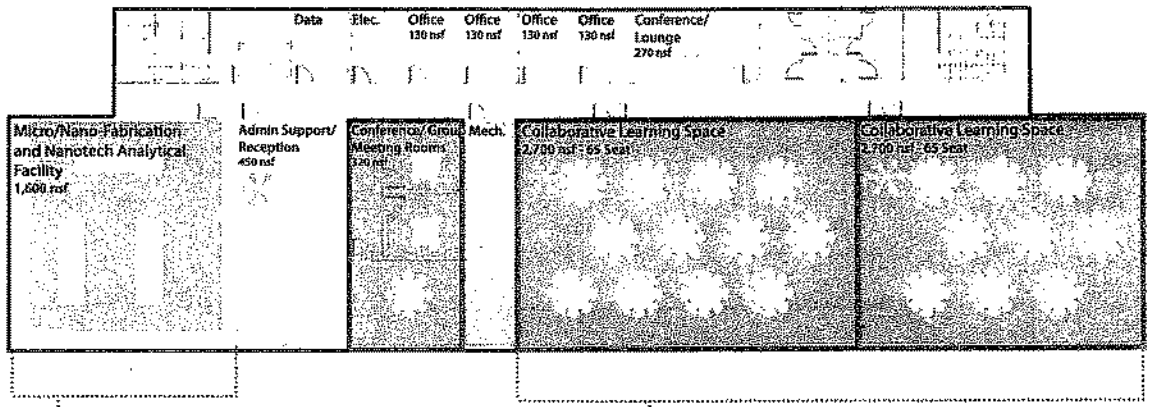
Teaching
Research
Outreach
Office/Conference

Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

Lower Level
north

16-58

Annotated floor plan for nanoscience space and engaged learning classrooms on first floor of EEE South.

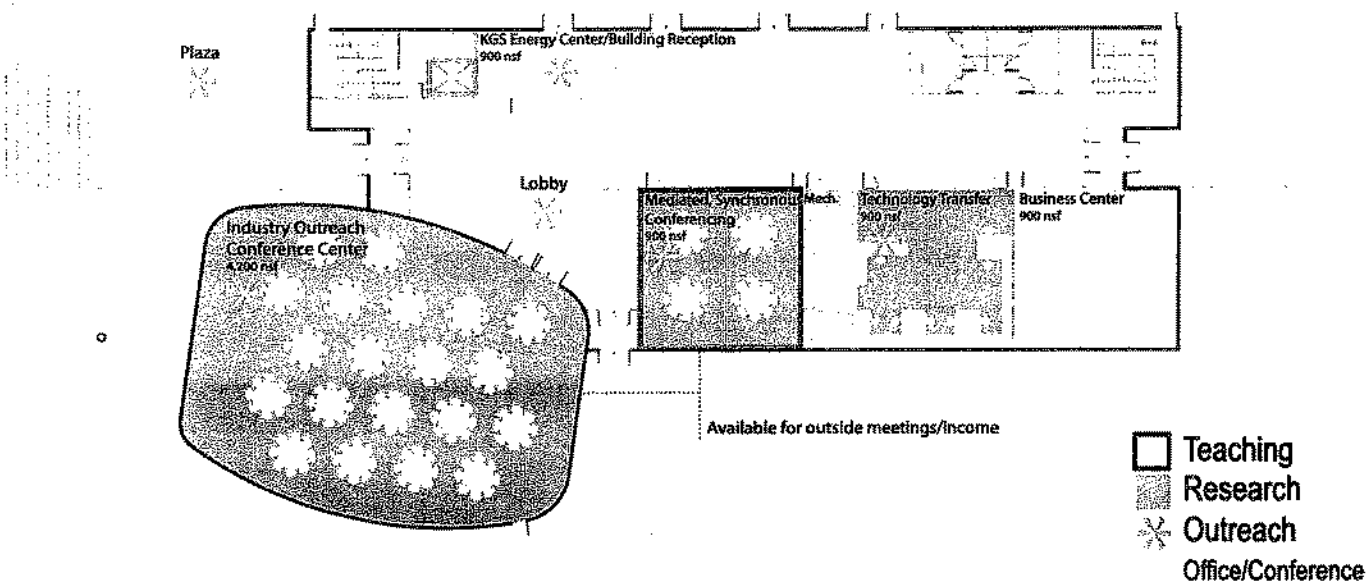


Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

First Floor

north

Industry outreach and tech transfer center on second floor of EEE South.

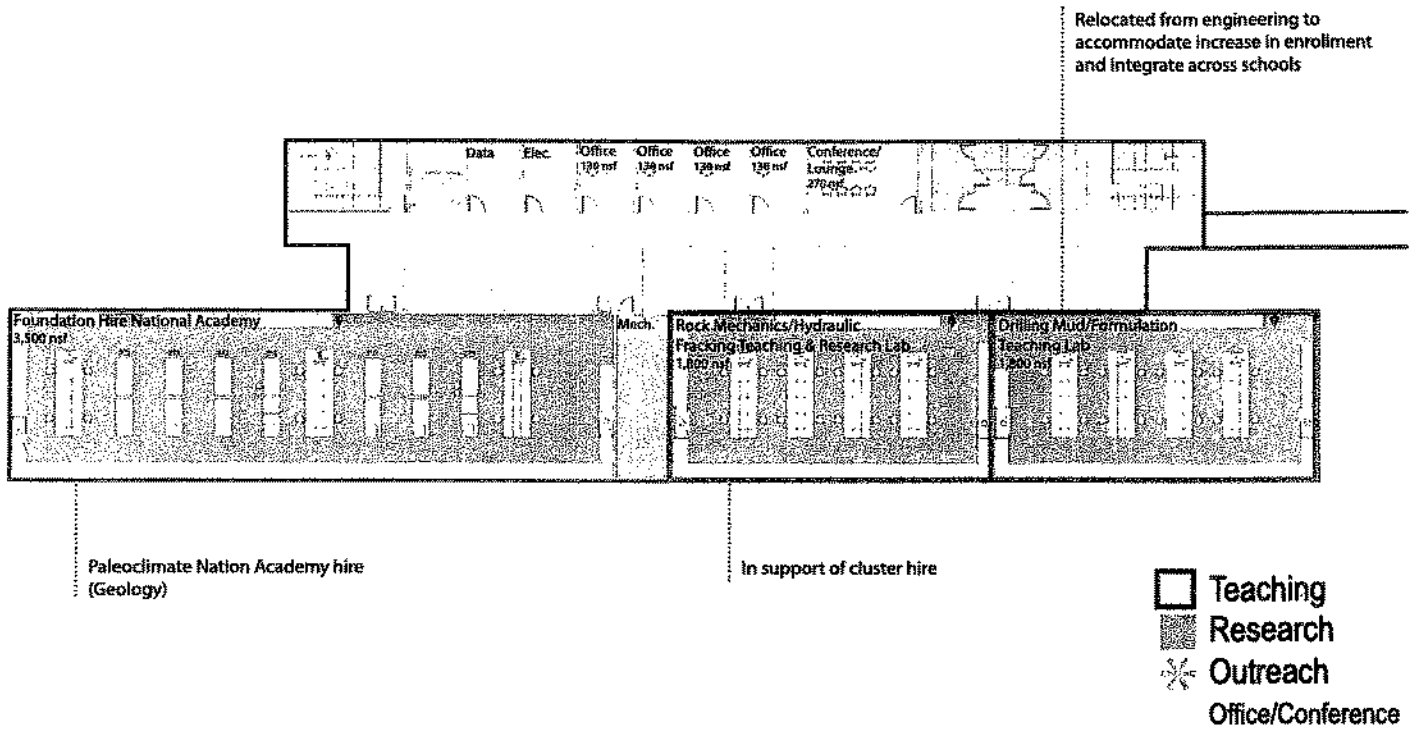


Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

Second Floor
north

16-60

Space for foundation hire in paleoclimate, petroleum engineering hire in unconventional oil and gas, and expanded teaching lab for petroleum engineering on third floor of EEE South.



Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

Third Floor

north

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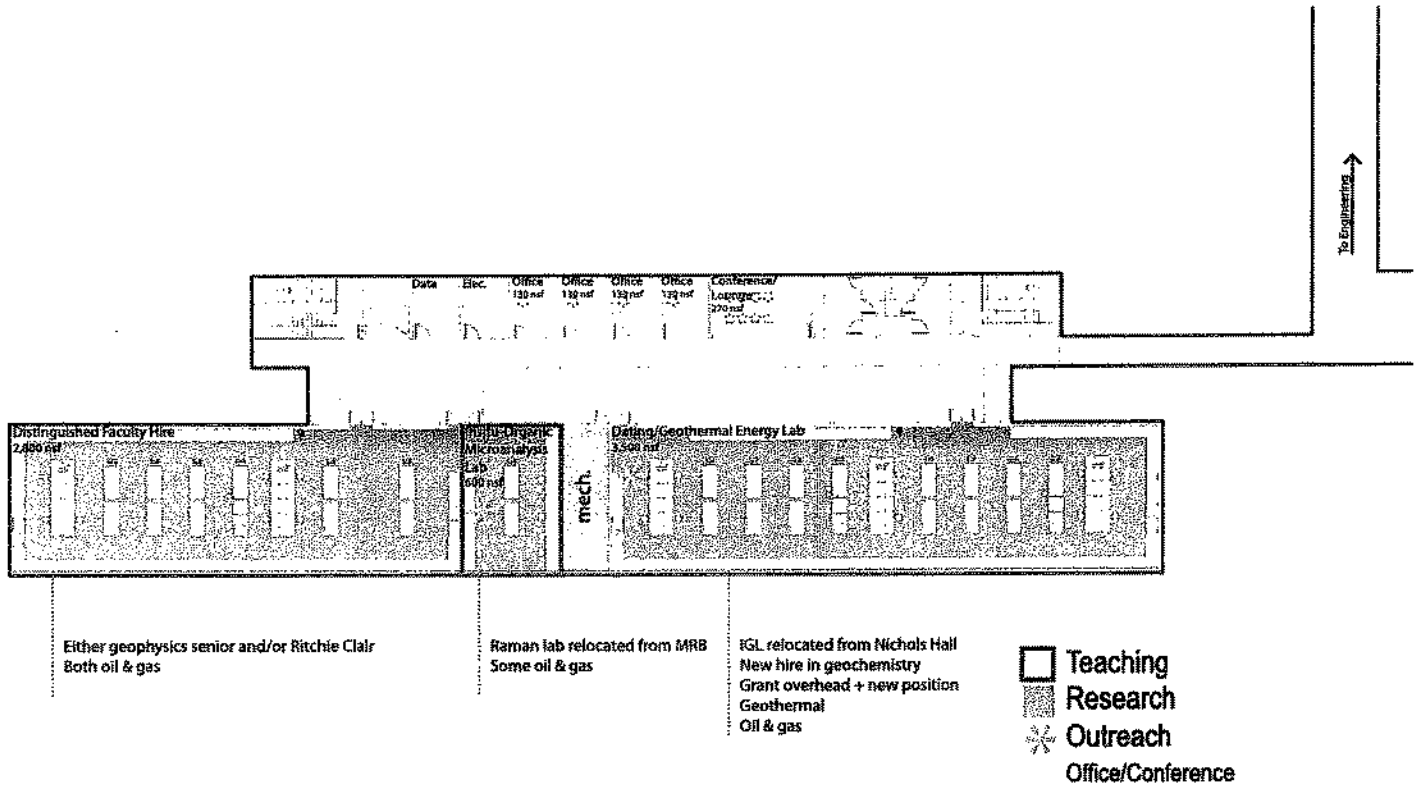
Research lab for foundation hire in geophysics and sedimentology, Raman microprobe, and isotope geochemistry lab on fourth floor of EEE South.



Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

Fourth Floor
north

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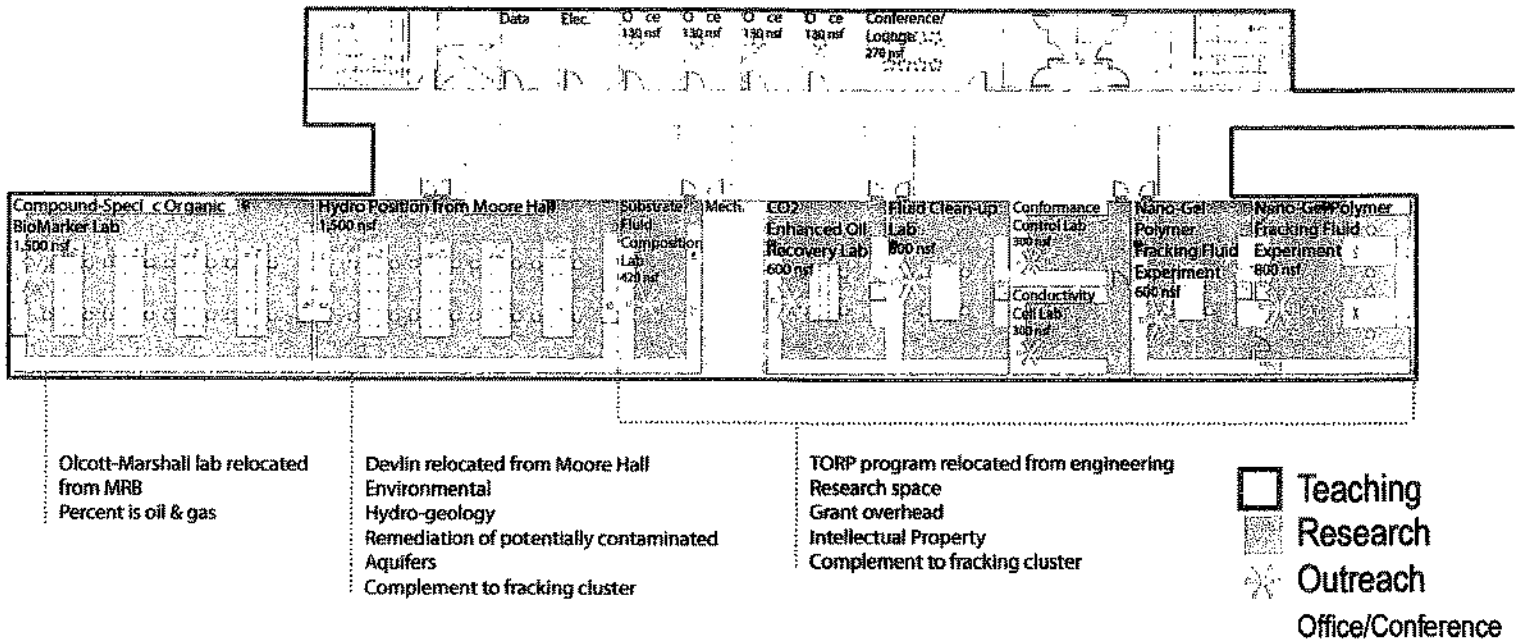
Research labs for Tertiary Oil Recovery Program, remediation of contaminated aquifers, and compound-specific isotope analysis of organic matter located on fifth floor of EEE South.



Earth, Energy and Environment Institute
Lindley Hall Expansion Phase II
University of Kansas + Gould Evans

Fifth Floor

north

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Architectural Program

Marvin Hall - Forum Addition

KU Project No. 041-8100

Date: August 27, 2013

Prepared by:

The University of Kansas, Lawrence Campus
School of Architecture, Planning & Design
Office of Design & Construction Management

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Programming Committee

John Gaunt, Dean; Architecture, Design & Planning

Dan Rockhill, Distinguished Professor/Studio 804

Jim Modig, University Architect & Director, DCM

Steve Scannell, Asst. Director-Consultant Services, DCM

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Background

Marvin Hall was designed by State Architect John F. Stanton and opened in 1909 at what was then the extreme west end of KU's main campus. It was named for Frank O. Marvin, first dean of engineering (1891-1913), son of third chancellor James Marvin (1874-83) and a noted artist and musician. Engineering and architecture programs were based here and in several other campus buildings; they were consolidated as "new" Fowler Shops and other engineering workshops were built south of Marvin in ensuing decades.

Affer Learned Hall opened in 1963 to house engineering programs, the architecture faculty remained in Marvin, and the School of Architecture and Urban Design was created in 1968; it was renamed Architecture and Urban Planning in 2007. In an administrative reorganization in 2009, several design departments from the former School of Fine Arts were incorporated into this school, and it was renamed the School of Architecture, Design and Planning (SADP).

By the mid-1970s new facilities had become imperative, and the decision was made to renovate Marvin Hall. Gould Evans Associates of Lawrence was selected for the award-winning renovation that cost $2.8 million. It incorporated conference rooms and studios, classrooms, faculty and staff offices, and the dean's office; some studios, craff shops and jury rooms are in Snow Hall. When the building was re-dedicated April 17, 1982, it was renamed for both Marvins, father and son.

A later project added a bridge structure between Marvin Hall and the Art & Design Building to create an enclosed hallway between them, and to house a computer lab and offices serving SADP students.

The School also occupies the Marvin Studios building, historically known as the "Mud Hut", south of Marvin Hall and east of the Art & Design Building. Several of the design programs now affiliated with the SADP are still housed in the Art & Design Building.

Studio 804 is a 501(c)(3) not-for-profit design-build program at the SADP which focuses on the creation of community-based architecture. The Studio 804 experience encompasses all aspects of the building process, from initial design through finished construction.

This graduate capstone studio has designed and built two other buildings of comparable size and complexity on the KU campus. The Center for Design Research building on KU's West Campus was completed in July 2011 and serves as a working laboratory focused on interdisciplinary collaboration in the research and development of consumer products and services. The Hill Engineering Research and Development Center (EcoHawks) facility was completed in July 2013. The EcoHawks design project is a thriving student program that challenges students to take the theory they learn in class and apply societal objectives to deliver a design that will make a real difference to the environment and how we preserve our natural resources.

Introduction

The purpose of this proposal is to activate a project that will transform the culture of the School through the creation of a central "commons" which will include a 180 seat lecture hall and meeting/exhibition space. While modest in size and cost, the Forum will be disproportionately important to the School and to KU in its critically needed function and aesthetic impact.

The School has never had a central place for this purpose, a "there" for interaction, welcome, and celebration of the work of its integrated professional programs -- a cultural amenity that is common to virtually all design-based schools nationally. While this need has existed throughout the School's 45 years of

occupancy in Marvin Hall, the current opportunity is due to a confluence of factors.

The most significant factors are the 2009 acquisition of a 70,000 square foot warehouse for design/construction research and fabrication and the associated obsolescence of the "builders' yard" on the proposed site attached to Marvin Hall, as well as the opportunity to engage the Studio 804 program for the design and construction of the project during this 2013-14 academic year.

The Forum will enrich the School's professional culture and, in its transparency, invite interaction with the larger University community. The goal is to complete the project by the end of Summer 2014. It will serve the critical needs of SADP's three departments for lecture space, encouraging interaction of students and faculty, and providing a unique sense of place.

Project Description

The Forum at Marvin Hall will construct a new lecture hall and transform the existing second floor jury room into a student commons area. The new commons space will offer an area for students to congregate and create a foyer for the lecture hall. The addition will extend from the south elevation of the existing Marvin Hall and be accessed thru two existing windows that will be converted to accommodate the passage opening.

The renovated commons area inside Marvin Hall structure will be approximately 925 net square feet (NSF). The new addition will encompass approximately 2,700 gross square feet (GSF).

Included in the addition:

- 180 fixed seats in tiered aisles that start at the existing second floor level of Marvin Hall and end approximately two feet above the exterior grade on the building's exterior.
- 100 SF storage area accessible from the lecture hall stage.
- The tiered seating will span over an existing 285 SF shed that houses electrical equipment for Marvin Hall. The western-most wall of the shed will have to be altered to fit under the tiered floor. It is anticipated that no electrical equipment will be impacted.
- The rest of the space under the tiered floor will be used for storage and for HVAC equipment.
- The space under the floor will be accessed by a doorway in the east elevation of the addition.

The addition's structural system and foundations will be designed to work around the existing underground utility conditions at the proposed site.

Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives.

<u>Organizational Goals:</u>

- Marvin Hall does not have adequate commons spaces for students to gather, share ideas, relax and study. This project will create a space for this to occur.
- Marvin Hall also lacks a large lecture hall, which means all large lecture classes must be held in buildings separate from the rest of the architectural classes.
- Visiting lecturers are an important part of an architecture student's education and at this time, those lectures occur in a variety of halls on campus or off campus. This project will

create a dynamic space that reinforces the quality of a KU educational experience, and will greatly improve student accessibility to large lecture programs.

Functional Goals:

- The commons will be able to hold as many as 60 people (15 SF per person) when serving as the foyer for events in the lecture hall and will be furnished to be used by smaller numbers during non-event hours.
- The 2,325 NSF lecture hall will seat approximately 180 people (13 SF per person) and will be accessed from within Marvin Hall thru the commons or from outside at grade level.
- The new building will be a creative yet compatible addition to the KU campus architecture, which reflects the school's interest in design and sustainability.
- Marvin Hall is part of the KU campus historic district as designated by the State of Kansas. The design of this building will respect that designation.
- This project will strive for LEED Platinum status and will reach for the highest standard of sustainability in material choice and energy generation and use.
    - The roof will hold enough photovotaics to help offset the building addition's yearly energy use
    - The perimeter of the building will incorporate a dual wall elevation with louvers that will be used to take advantage of the sun for heat and daylighting while managing the problem of overheating and UV damage.
    - Throughout the design it is anticipated that wood materials salvaged from the Swarthout Recital Hall renovation will be used.
    - Use of salvaged Swarthout seating will be explored.
    - All new materials will meet the highest standards in V.O.C. emission and embodied energy. Salvaged or recycled materials will be extensively used.
    - All materials will be chosen and used in a manner to minimize long term maintenance and to assure that daily maintenance such as cleaning can be done without unusual demands on KU facilities staff.
- Completion and occupancy by fall semester 2014.
- Minimize noise, disruptions and inconvenience to the occupants of adjacent buildings during construction.
- Maintain access to and use of adjacent site areas and buildings during construction.
- Maintain unimpeded access to and use of parking areas and fire lanes at all times during construction.
- Address life safety issues and meet current code requirements.

Functional Needs

Commons:

- The commons will require seating that encourages student gatherings but still works for individuals who wishes to study or relax.
- Ambient lighting for event gathering and task lighting for reading will be required.

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- Easy access to electrical outlets from seating should be addressed, for the charging of phones, computers, etc.

- Skylights in the lecture hall will be located to coordinate with the existing window openings in the south wall of the lounge, so daylight will enter the space.

Lecture Hall:

- Space temperature will need to be consistent for the comfort of large groups. The HVAC system will be designed to manage the heat generated by crowds as well as the seasonal changes of the weather.

- The daylight and artificial lighting levels will be adjustable on command by the users. Louvers will be remotely operable so they can be moved into a position which allows direct light to enter, or which blocks direct light but allows deflected ambient light, or which essentially blocks all daylight from entering.

- The artificial lighting shall also be easily adapted to the use of the space, creating enough light for note-taking or at minimum levels to assure safe egress.

- Audio/Video Systems:

    - A lectern will be required for lecturers, which will house necessary projection equipment.

    - Projection equipment will be suspended from the trusses.

    - A projection screen will be included.

    - All projection equipment and wiring will be designed and installed in a manner that will allow for future upgrades without having to dismantle finished surfaces.

- The space will be acoustically engineered to assure 'clean' sound from the front row to the back, with appropriate reflectance, diffusion and absorption of sound.

Site Improvements & Infrastructure

Site Improvements

- Parking: Existing parking shall remain unchanged. A recent project replaced most of the parking lot behind Marvin Hall, at which time virtually all of the spaces were converted to accessible parking, to address the need for accessible stalls near the center of campus, atop the hill.

- Landscaping: Existing landscaping will be maintained or replaced with like materials, if disturbed.

Utilities & Infrastructure

- New mechanical and electrical systems will be served by existing infrastructure. No new extensions of the utility services will be required as part of this work.

    - Existing mechanical / electrical equipment serving undisturbed portions of the complex shall be maintained in service at all times, except for short-term shutdowns.

- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DCM and FS personnel, and others who may be affected.

Hazardous Materials

The KU Environmental Health & Safety Office will perform tests of existing materials as required to ascertain the presence or absence of hazardous materials.

KU's standard policy is to remove all hazardous materials when undertaking renovations of existing buildings.

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Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes as listed at the State of Kansas, Office of Facilities & Property Management (OFPM) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the architect on DCM's standard 11x17 code footprint sheets.
  - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Schematic Design phase.
  - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- Construction Exiting: Temporary fire-rated exit corridors shall be provided through the construction site, if required to protect and direct occupants from all required exits to a public way. They shall remain in-place at all times while construction work is underway.
- Fire Sprinkler: The existing building lacks a fire sprinkler system and a new system isn't currently planned, unless required by the code authorities with jurisdiction, after a detailed code analysis and review of all possible options.
- Fire Alarm: Systems shall comply with current code and KU requirements for an intelligent addressable system. The existing fire alerm system will be upgraded as required to meet the requirements of the code authorities having jurisdiction and KU standards.

Design Standards / Consultant Services

- The consultant team shall comply with the latest provisions of the University of Kansas *Design and Construction Stendards*, as maintained by the Office of Design and Construction Management (DCM).
  - These standards are available online at the DCM website: http://www.dcm.ku.edu/standards/design/
  - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual A/E disciplines:
  - Telecommunications System Engineer (must be pre-approved by KU-IT)
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and es-built sets.
  - Each set of electronic files shell include both PDF and AutoCAD .dwg files for each drawing sheet.
- Studio 804: It is proposed that the project design and construction will be provided by Studio 804, a not-for-profit design-build program at the School, with appropriate oversight, review and supervision by licensed professional architects and engineers, who shall sign and seal the final construction documents, as required by applicable state regulations.

Historic Preservation Reviews

The proposed addition is located near the following properties listed on the City, State or National Registers of Historic Places:

- Chi Omega Sorority (City, State and National)
- KU Historic District (State and National)

The Kansas Legislature repealed the 500' historic environs review requirements in 2013. The City of Lawrence still requires environs reviews of properties within 250' of a property listed on the City's historic register, but reviews are only required if certain conditions are met.

This project will not be subject to formal environs reviews by the City. It will be reviewed by DCM staff and by the Campus Historic Preservation Board (CHPB) for compliance with the KU Historic District.

An environs definition for the Chi Omega sorority was prepared by KU and accepted by the City, which indicated that the proposed site would subject to administrative review only by KU staff. Since line of sight issues to Chi Omega sorority and Jayhawk Boulevard are not a factor, KU anticipates that this proposed project will be historically acceptable.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources. No new state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists primarily of an addition to an existing building, which will create a new 2,700 GSF, 180 seat lecture hall and will convert an existing 750 SF seminar / presentation space into a student commons / lobby / gathering space.

Space Summary

Existing Building	55,225 GSF
New Addition (two floors, 2,700 GSF each)	5,400 GSF
Total Building Area	60,625 GSF

Proposed Construction Method

The Kansas University Endowment Association will contract with Studio 804 to design and construct the renovation and addition. The project will become state property upon completion.

Code-required inspections and plan reviews will still be conducted by the State of Kansas, OFPM-DCC office and by the University Fire Marshal Authority (UFMA).

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Project Budget

Construction Costs	
Demolition	15,000
Building Construction - Materials	900,000
Building Construction - Labor	240,000
Code-Required Life-Safety Improvements	
Fire Alarm	35,000
Fire Sprinkler	250,000
ADA Path of Travel (20% of total constr. cost)	295,000
Telecommunications (KU-IT)	10,000
Audio-Video Systems	15,000
Subtotal - Construction Costs	**$1,760,000**

Miscellaneous Costs	
Fees - Consultants, State / KU Agencies	100,000
Contractor Fees	90,000
Printing & Shipping of Bid Documents; Misc.	(incl. above)
Asbestos & HazMat Abatement	TBD
Construction Testing & M/E Commissioning	10,000
Bidding & Construction Contingency (5.8%)	120,000
Subtotal - Miscellaneous Costs	**$320,000**

Total Project Cost	**$2,080,000**

Notes:

1) Funding is proposed to come from a combination of private gifts and University resources.

Project Schedule

Funding / SADP Approval	Aug. 16, 2013
KU Administration Approval	Aug. 23, 2013
Board of Regents Submittal	Aug. 26, 2013
Board of Regents Approval	Sept. 16, 2013
Code Footprint Submittal	Sept. 16, 2013
Joint Committee / State Review	Oct. 2013
Demolition / Site Preparation	Oct. 2013
Code Footprint Approval	Oct. 2013
Construction Start	Nov. 2013
Project Completion / Occupancy	August 2014

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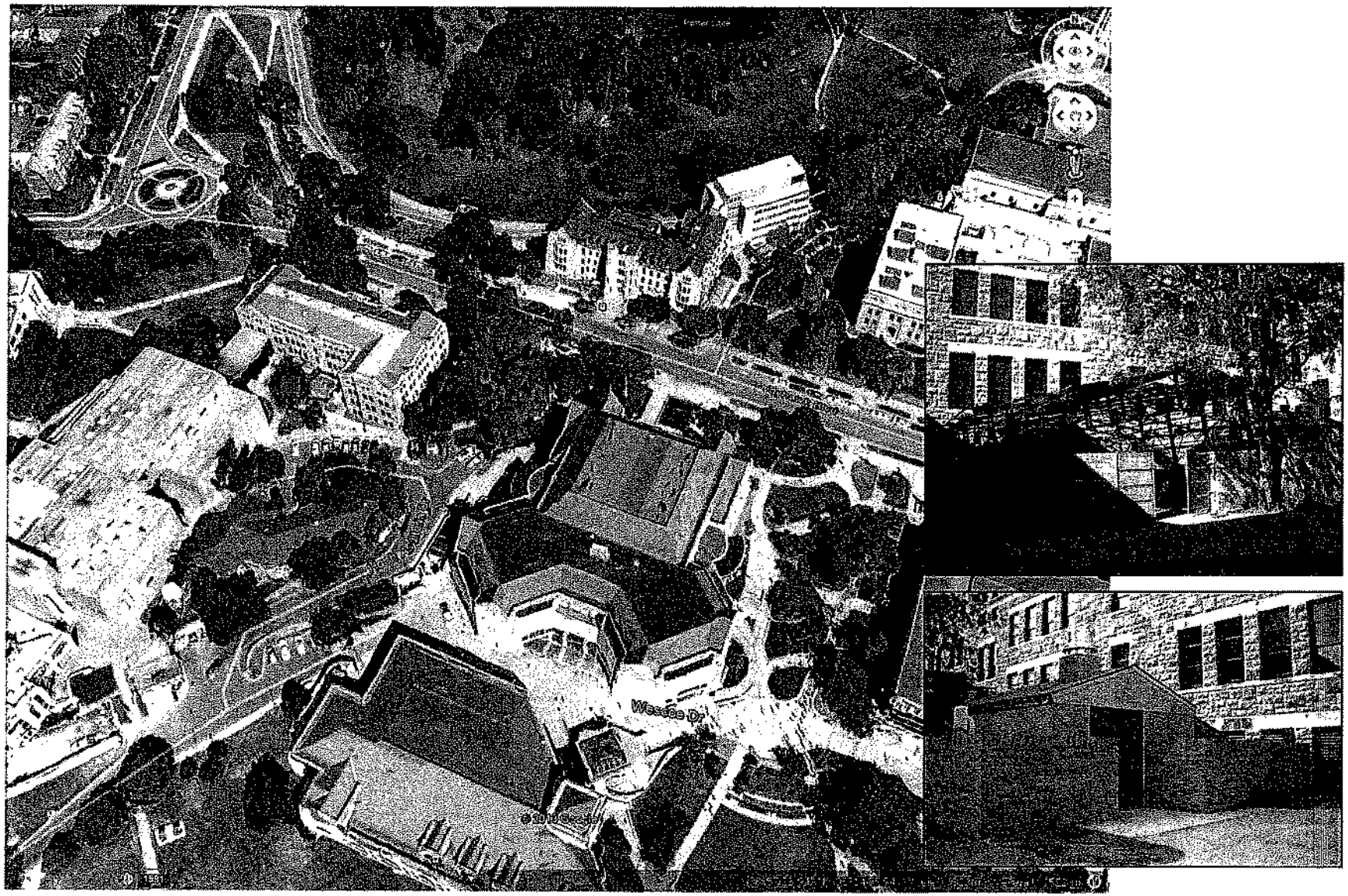
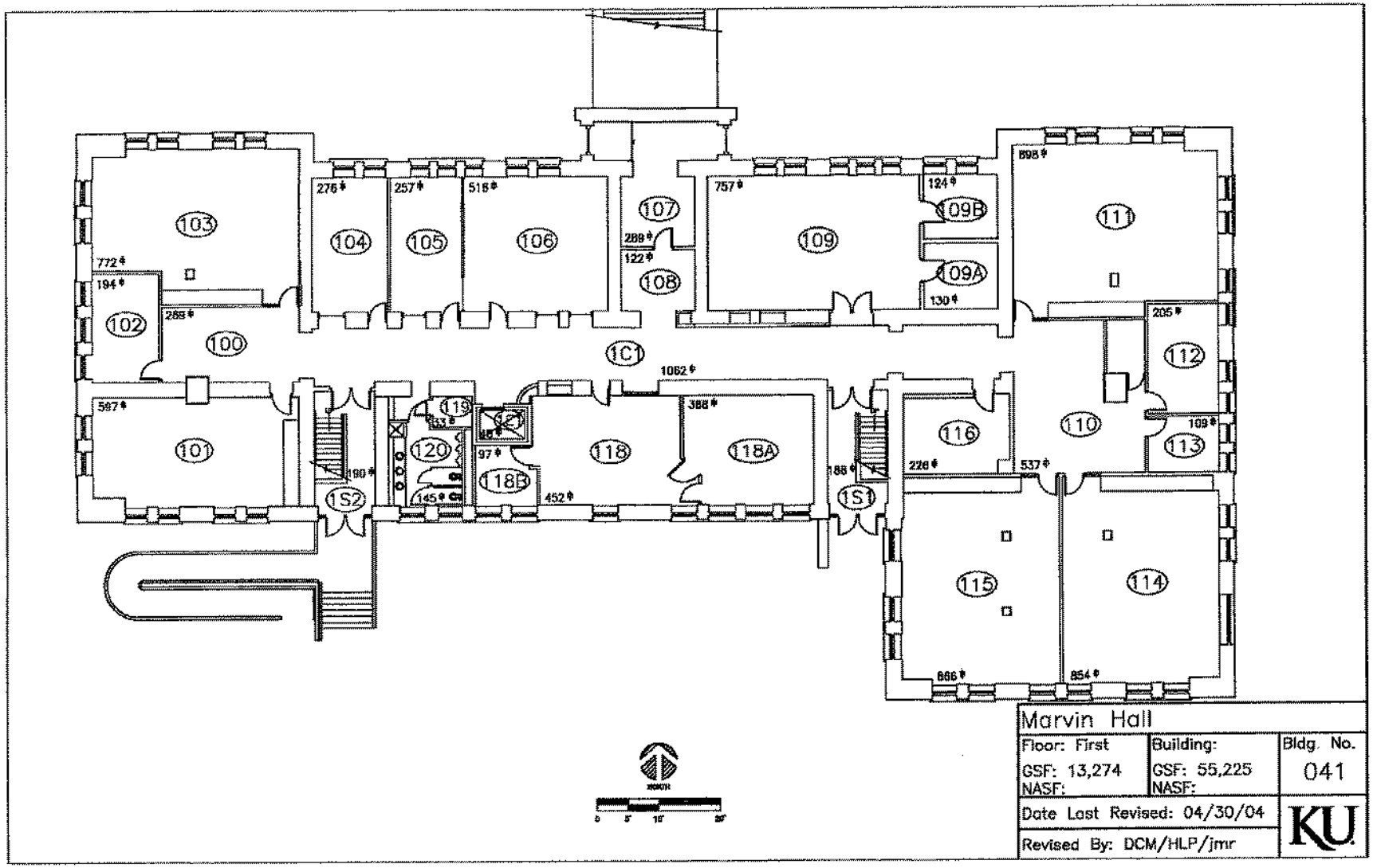
Existing Site / Aerial Photo – Proposed Location



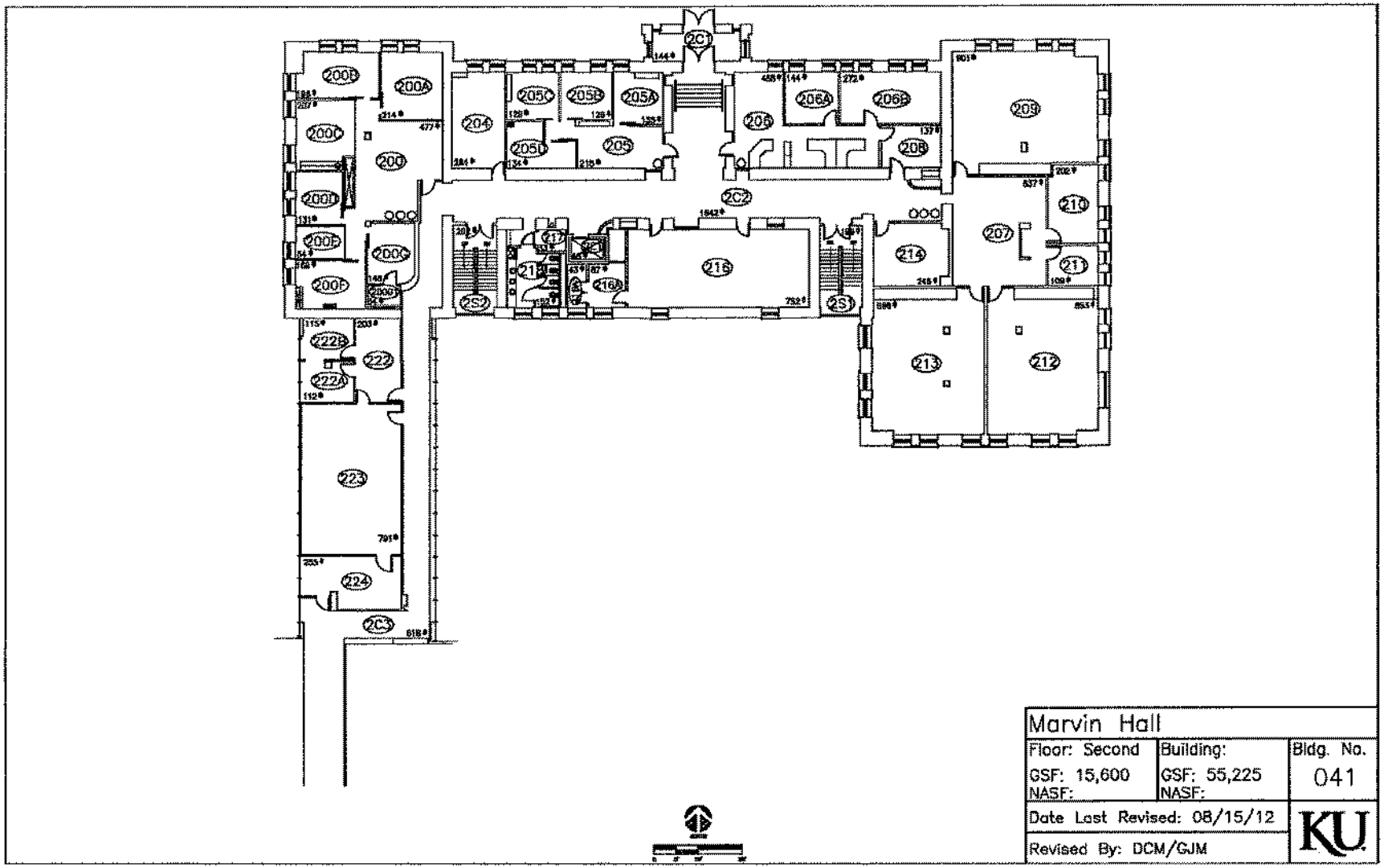
16-73

Existing First Floor Plan



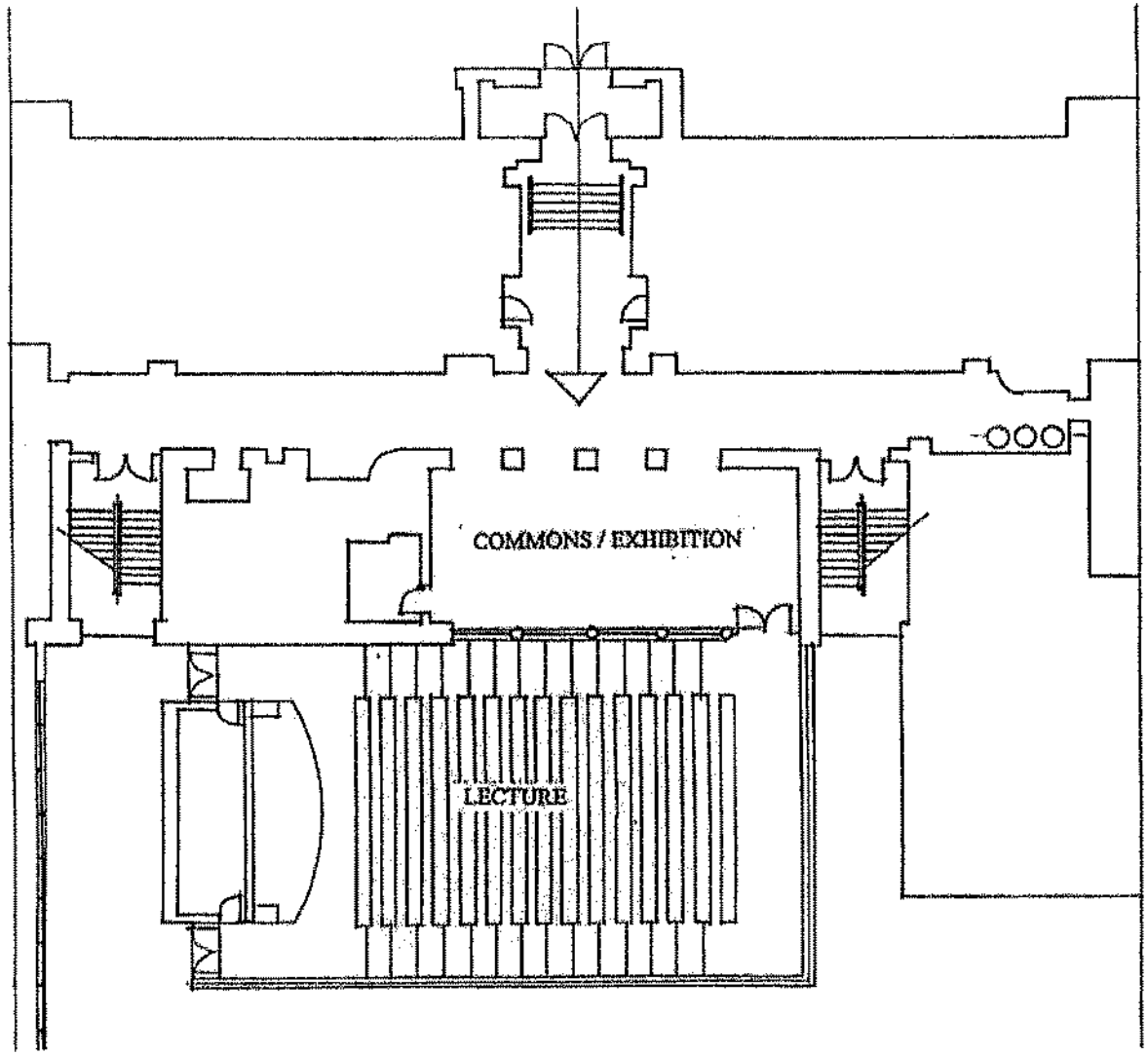
16-74

Existing Second Floor Plan



16-75

Proposed Second Floor Plan



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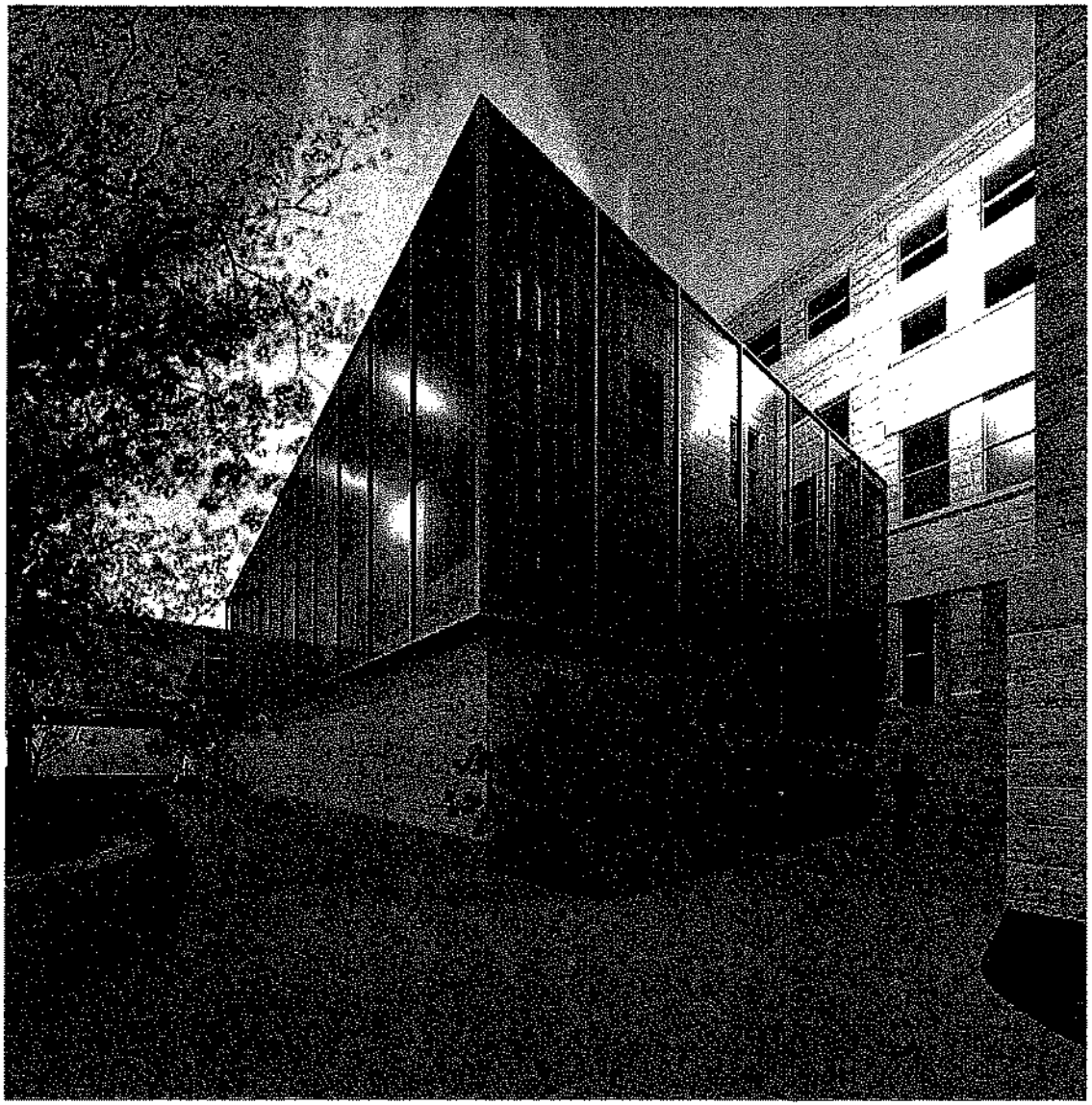
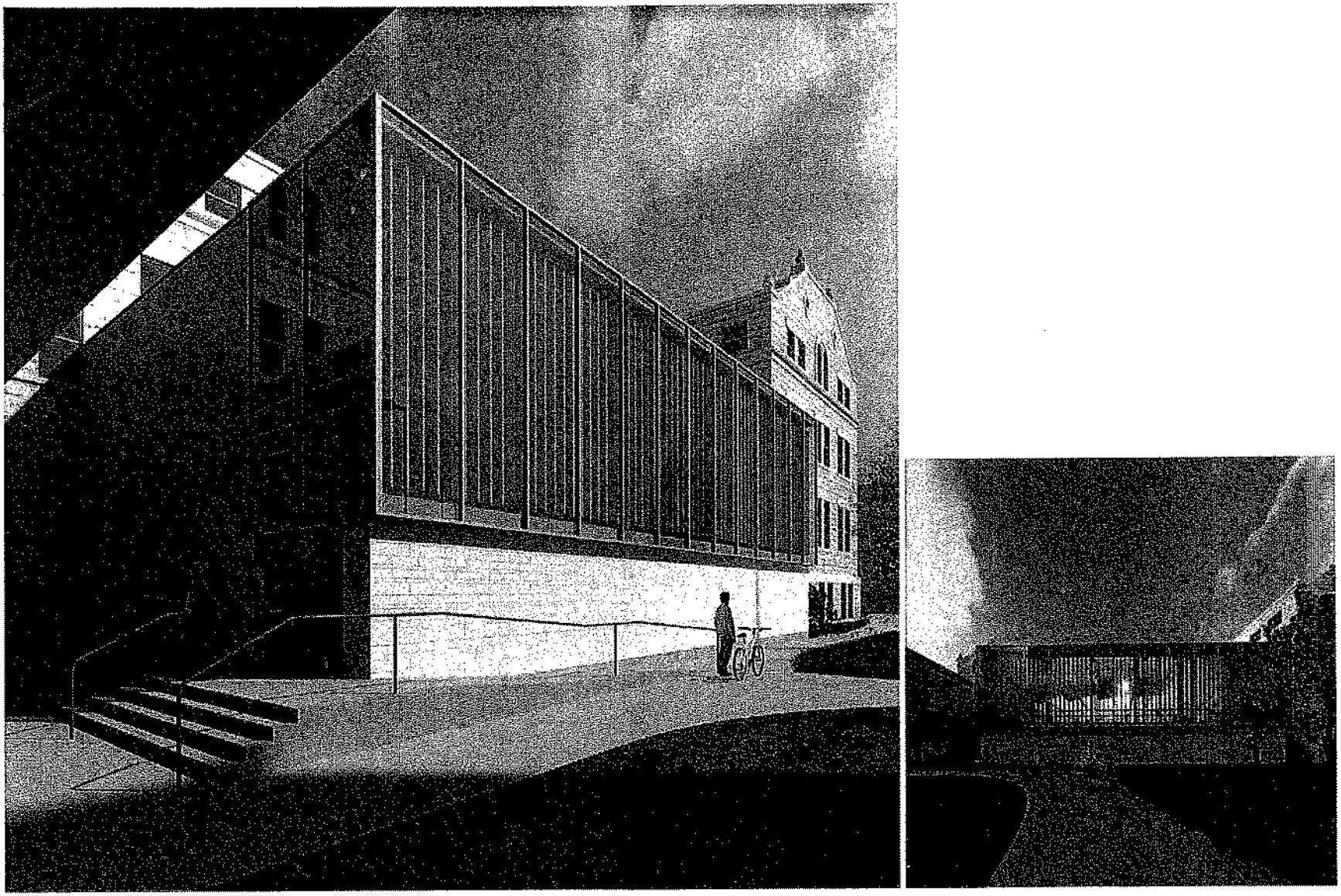
Proposed Concept Design – Exterior (South & East Elevation)



16-71

Proposed Concept Design – Exterior (South & West Elevation)



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Proposed Concept Design – Interior

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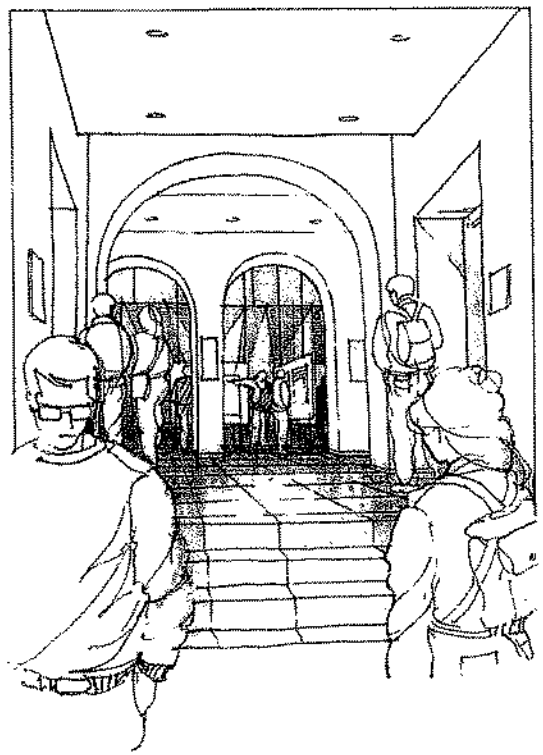
Proposed Concept Design – Interior



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Architectural Program

Spencer Museum of Art Improvements - Phase One

KU Project No. 152-10158

Date: September 25, 2013

Prepared by:

The University of Kansas, Lawrence Campus
Spencer Museum of Art
Office of Design & Construction Management

Programming Committee

Saralyn Reece Hardy, Director, Spencer Museum of Art

Janet Dreiling, Asst. Director-Collections/Registrar, SMA

Jim Modig, University Architect & Director, DCM

Steve Scannell, Asst. Director-Consultant Services, DCM

Laura Gagliano, DCM Project Manager

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Introduction

In 1917 Sallie Casey Thayer, a Kansas City art collector, offered her collection of nearly 7,500 art objects to the University of Kansas to form a museum "to encourage the study of fine arts in the Middle West." Her eclectic collection included paintings, sculpture, prints, drawings, furniture, rugs, textiles, metalwork, ceramics, glass, and other examples of decorative arts, primarily from Europe and Asia. Eventually, the University of Kansas Museum of Art was established in 1928, based on this collection. Over the yeers the collection has grown substantially, thanks to the generosity of many benefactors and tha expertise of several directors and curators: the 2007 acquisition of KU's renowned ethnographic collection brought the Spencer's holdings to 36,000 works, and the collection continuas to grow in size and complexity each year.

By the late 1960s the Museum had outgrown its quarters in Spoonar Hall. Helen Foresmen Spencer, another Kenses City collector and patron of the arts, made a gift of $4.6 million that funded construction of a new museum. The building housing the Helen Forasman Spencer Museum of Art and the Kress Foundetion Dapartment of Art History opened in 1978, with the addition of the Murphy Art and Architecture Library completing the facility in 1980. The neo-classical structure, built from Indiane limestone, was designed by Kansas City architect Robert E. Jenks, e 1926 graduate of KU.

Today, the Spencer Museum of Art (www.spencerart.ku.edu) is a vibrent research, teaching and community/university institution that is anergizing the KU campus, the City of Lawrence, the Midwest region end beyond. The Museum offers innovativa, thought-provoking, multi-sensory experiences while integrating its collections, exhibitions, facilities and creative projects into the cross-disciplinary academic and intellectual life of the University of Kansas.

Guiding this growth, the SMA mission statement raads: *The Spencer Museum of Art sustains a diverse collection of art and works of cultural significence. It encourages interdisciplinary exploration et the intersection of art, ideas, and experience. The Spencar strengthens, supports, and contributes to the academic research and teaching of the University of Kansas and is committad to serving communities of learners across Kansas and beyond.*

Project Overview

The Spencer Museum of Art is proposing to complete various improvements throughout the existing building, in order to improve the visitor experience and support educational activities. The renovations will include a new central stair and elevator for easily identifiable, efficient circulation through the galleries. Skylights above tha central Gallery will bring natural light in and energize a previously windowless space.

New study centers will be provided adjacent to the skylit Central Court, in easily accessible locations on two floors. New wood flooring end lighting in the Gallary spaces will improve the interior ambience and better illuminata ert and exhibits. A new entry foyer/portico will improve the entry experience into the building.

Altogether these improvements will greatly improve visitor circulation throughout tha building, enhance lighting and finishes in saveral public areas and Gallery spaces, and provide much needed collaborativa space for students and visitors.

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Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- Create a uniquely useful and attractive facility that encourages travel between exhibits.
- Encourage students of all disciplines to study in the facility.
- Provide natural light throughout the facility.
- Encourege and increase activity in the Gallery Court.
- Improve lighting in the Gallery Court.
- Provide a welcoming, new entry into the Gallery Court.
- Enlarge and enhence the main entry foyer, including a portico entrance and a new feature window.
- Renovate the existing auditorium to provide for improved learning environments
- Complete the renovation work within the design and construction schedule, while maintaining high standards of quality in all areas.
- Enhance the security of the building and the collection.
- Minimize noise, disruptions and inconvenience to the occupants of adjacent buildings during construction.
- Maintain unimpeded access to and use of parking areas and fire lanes at all times during construction.
- Address energy conservation and sustainability issues in the building's design.
- Address life safety issues and meet current code requirements.
- Develop and implement e proactive and collaborative team approach to delivering the overall project on time and within budget.
- Develop a plan for moving the cooling towers off the roof, to e permanent master-planned location.

Space and Program Needs

Proposed improvements include the following items, which will be prioritized in collaboration with KU and which shall be completed to the extent that current funding allows. Alternate bids will be taken for flexibility in bid awards & overall phasing.

Central Gallery

- New central stair and elevator will connect Levels 3 and 4.
- New skylights are proposed to be installed above the existing Central Court.
- New glass reilings et stairwell opening.
- New Study Centers on Levels 3 (currently Room 318) and possibly Level 4.
- New wood flooring in Level 3 Gallery spaces.
- New lighting in Level 3 Gallery spaces.
- Refurbish existing Central Court (currently Room 317).
- Provide new entry into Central Court.

Interiors

- New entry foyer / portico entrance.
- New feature window above main entrance into Level 4.
- Patching of finishes and repainting throughout.
- Improve auditorium finishes.

Mechanical / Electrical

- Lighting and HVAC shall be upgraded as indicated or required to support the indicated improvements.
- As one of the first project tasks, A/E shall assess options for relocating cooling towers off the current roottop location and shall submit options/costs to KU for consideration and direction re: if thet work will be completed as part of this

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phase of work or a future phase. Proposed new location(s) shall be master-planned to successfully address operational, site & aesthetic concerns for current & future phases of work.

Telecommunications & Security

- New data ports and wireless service will be provided in remodeled areas.
- Security cameras shall remain or be relocated.
- Access control systems shall remain as-is.

Site Improvements & Infrastructure

Site Improvements

- No exterior sitework is proposed in the current project scope, except as required re: the new entry portico.

Utilities & Infrastructure

- No modifications or extensions of the utility services to this building are anticipated as part of this work.
  - Existing mechanical / electrical equipment serving undisturbed portions of the building shall be maintained in service at all times, except for short-term shutdowns.
- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DSH and FS personnel, and others who may be affected.

Hazardous Materials

The KU Environmental Health & Safety Office will perform tests of existing materials which will be affected by the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

KU's standard policy is to remove all hazardous materials when undertaking major renovations of existing buildings.

Deferred Maintenance

The Spencer Museum of Art is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 76

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.24

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work: The currently proposed project will address, at least in part, the following items which have been identified as deferred maintenance needs:

- Exterior doors, frames & curtain wall
- Emergency generator (as required for code compliance)
- Fire alarm system upgrades (as required for code compliance)
- Misc. HVAC & electrical improvements
- Misc. ADA upgrades (as required for code compliance, re: path of travel to remodeled primary function areas)

Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes as listed at the State of Kansas, Office of Facilities & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the architect on DCM's standard 11x17 code footprint sheets.
  - The architect shall update these drawings to reflect all proposed work and submit them for approval to DFM through the KU-DCM office, immediately following approval of the Design Development phase.
  - Electronic files of the approved code drawings shell ba forwarded to DCM in both .PDF and .DWG formats.
- Construction Exiting: Temporary fire-rated exit corridors shall be provided through the construction site, if required to protect and direct occupants from all required exits in the surrounding occupied existing buildings to a public way. They shall remain in-plece at all times while construction work is underway.
- The building fire sprinkler system shall be modified as required to maintain coverage throughout the building.
- Fira alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements.

Design Standards / Consultant Services

Tha architectural/engineering (A/E) team shall comply with the latast provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM), posted online at DCM's wabsite at: http://www.dcm.ku.edu/standards

  - The A/E team shall also comply with supplemental updatas to these standards which may be issued during the course of the project.
  - The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.
- The Owner's Representative shall be a DCM staff person essigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A/E and Contractor.
- Special Consultants that will be required on the A/E team, in addition to the usual A/E disciplines:
  - Telecommunications Engineer (KU-IT pre-approved)
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions & meeting spaces)
- Electronic Files: Consultants shall daliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - Each set of electronic files shall include both PDF and AutoCAD .dwg files for each drawing sheet.
- Models, if any, shall be delivered to and remain at KU.
- Contract: An AIA B101 contract document, as amended solely by the University, will be used to contract for the A/E services. A copy will be provided to each short-listed firm, along with the corrasponding A201 Ganeral Conditions document to be used for construction.

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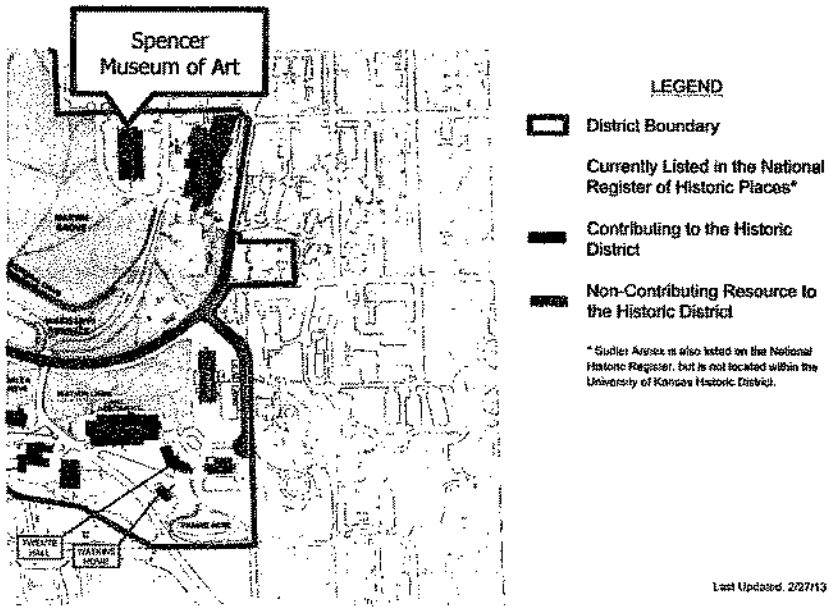
Historic Preservation Reviews

The existing building is not located within 500 feet of any properties listed on the City, State or National Registers of Historic Places. The Kansas Legislature repealed the 500' historic environs review requirements in 2013. The City of Lawrence still requires environs reviews of properties within 250' of a property listed on the City's historic register, but reviews are only required if certain conditions are met. No environs reviews will be required for this project.

The existing building is loceted within the KU Historic District, but is a non-contributing resource. This project will be reviewed by DCM staff and by the Campus Historic Preservation Board (CHPB) for compliance with the KU Historic District.



Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources. No new state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists primarily of the renovation of existing space. The only new space created will be the limited area enclosed by the new entry portico. As such, this project will not add any new usable space to the University's space inventory.

Space Summary

Existing Building	91,085 GSF
New Addition (entry portico)	290 GSF
Total Building Area	91,375 GSF

Proposed Construction Method

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criterie, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

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Project Budget

Construction Costs	
Central Stair & New Elevator	435,000
Central Skylights	445,000
Study Centers	270,000
Central Court Refurbishment & Wood Floor	400,000
Gallery Lighting Improvements	120,000
Central Court Entry	135,000
Main Entry Foyer	305,000
Entry Portico & Feature Window	170,000
Auditorium Improvements	300,000
Rooftop Cooling Tower Relocation	TBD (future)
Code/ADA-Required Improvements	TBD (as required)
Subtotal - Construction Costs	**$2,580,000**

Miscellaneous Costs	
Fees - Consultants, State & KU Agencies	350,000
Printing & Shipping of Bid Documents; Misc.	15,000
Asbestos & HazMat Abatement (scope TBD)	40,000
Construction Testing & M/E Commissioning	75,000
Bidding & Construction Contingency (7.3%)	240,000
Subtotal - Miscellaneous Costs	**$720,000**

Total Project Cost	**$3,300,000**

Notes:

1) Funding is proposed to come from private gift funds.

Project Schedule

KU Capital Projects Council Review & Approval	Jul. 2013
KBOR Review & Approval	Sep. 2013
Legislative Jt. Comm. Review	Oct. 2013
A/E Selection	Oct. 2013
Negotiate Fees / Start Design	Oct. 2013
Submit Code Footprint (SD Submittal)	Dec. 2013
Code Footprint Approval	Feb. 2014
Complete CD's, submit for permit (5 mos.)	Mar. 2014
Receive Bids; Award Contract	Apr. 2014
Construction Starts	May 2014
Construction Completion (6 Mos.)	Nov. 2014

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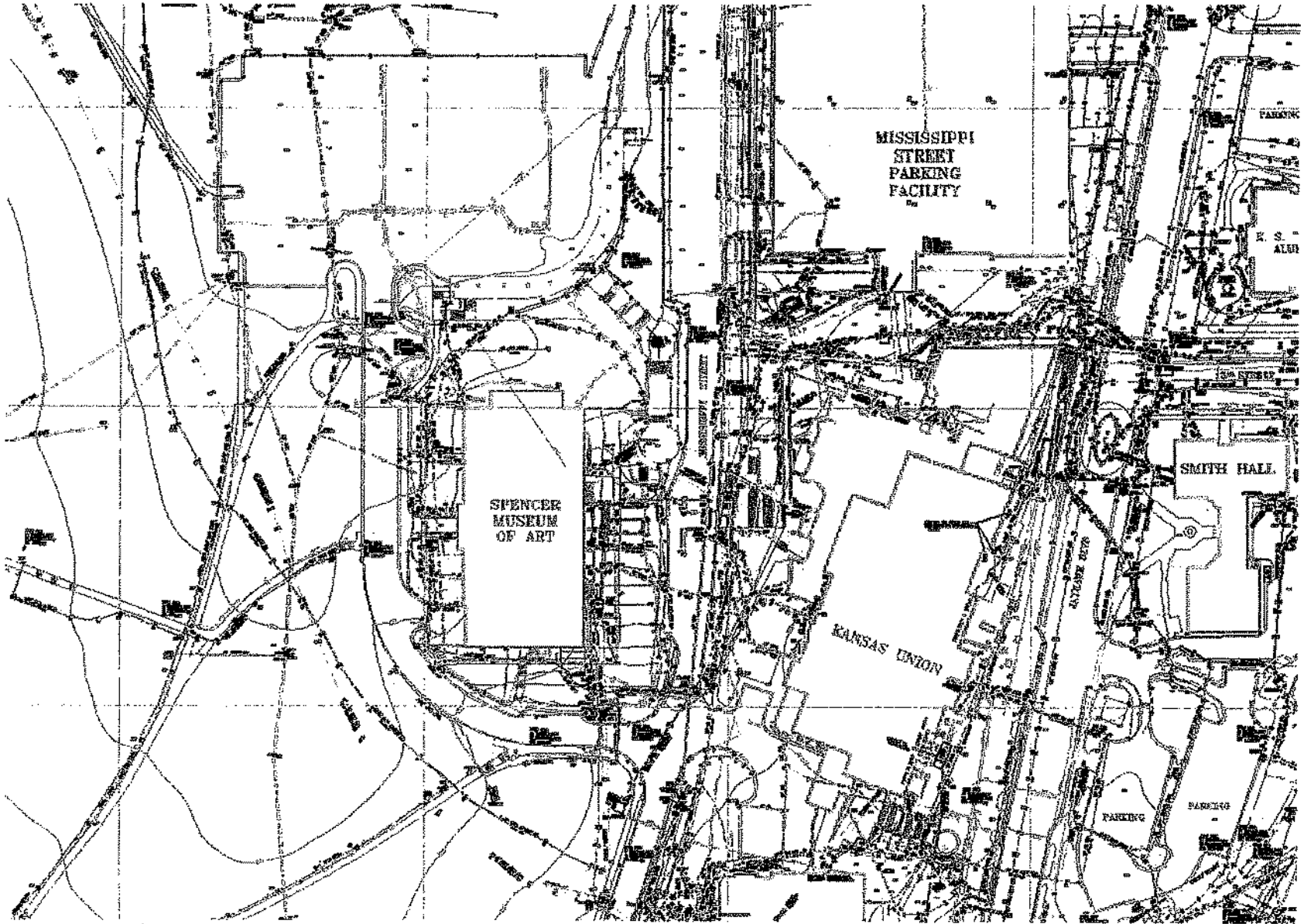
Existing Site Plan



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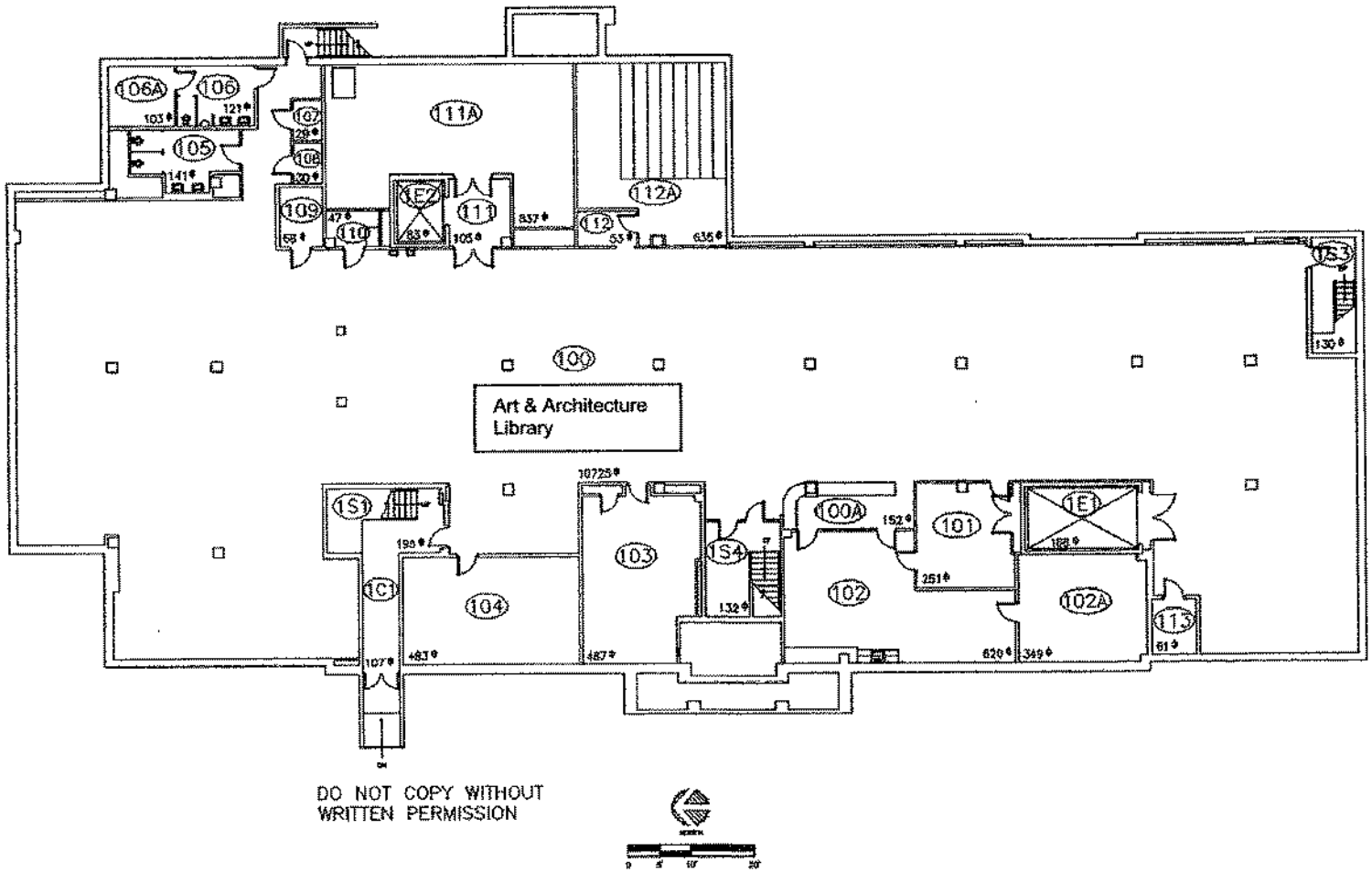
Existing First Floor Plan



Existing Second Floor Plan

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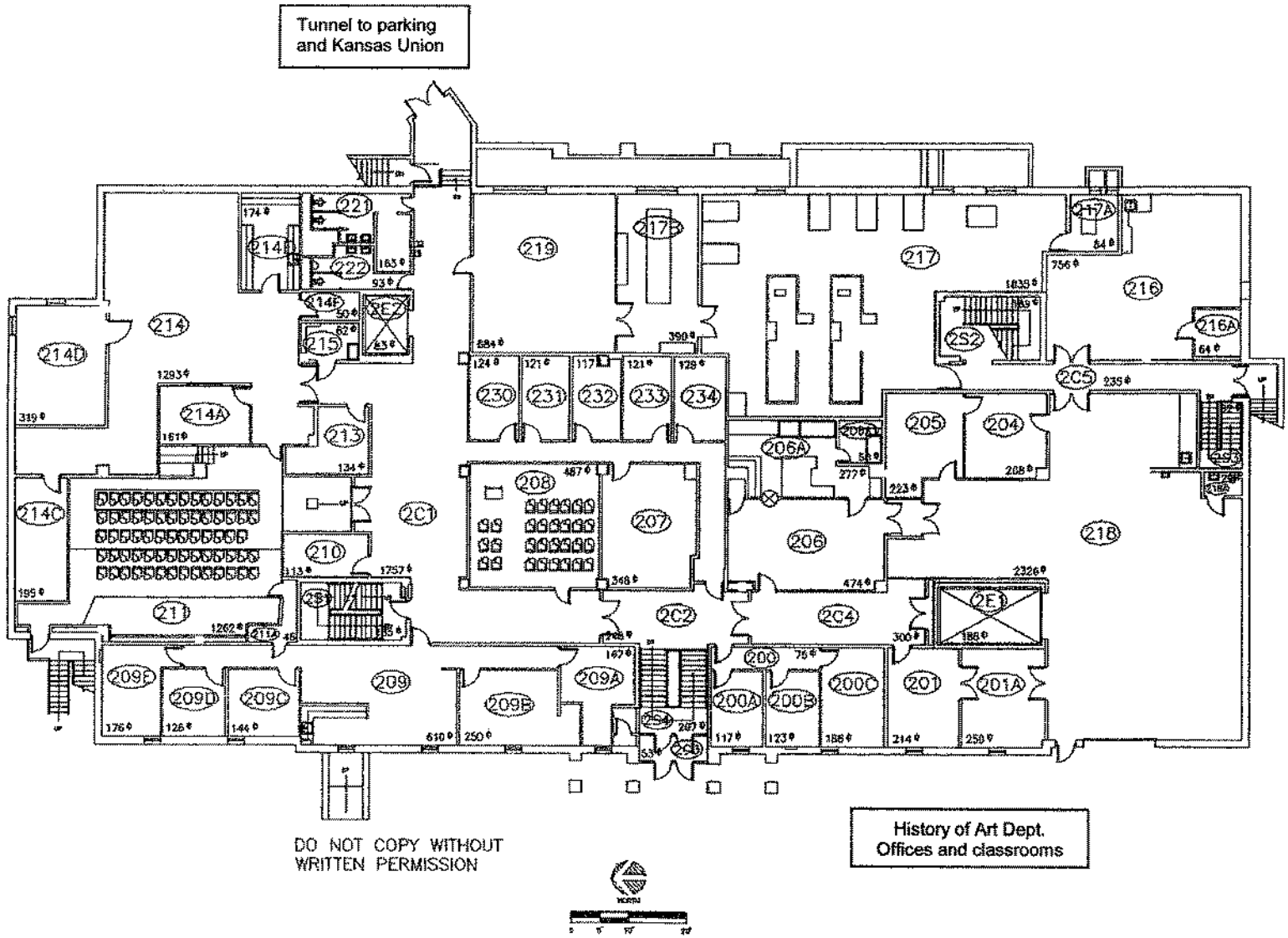
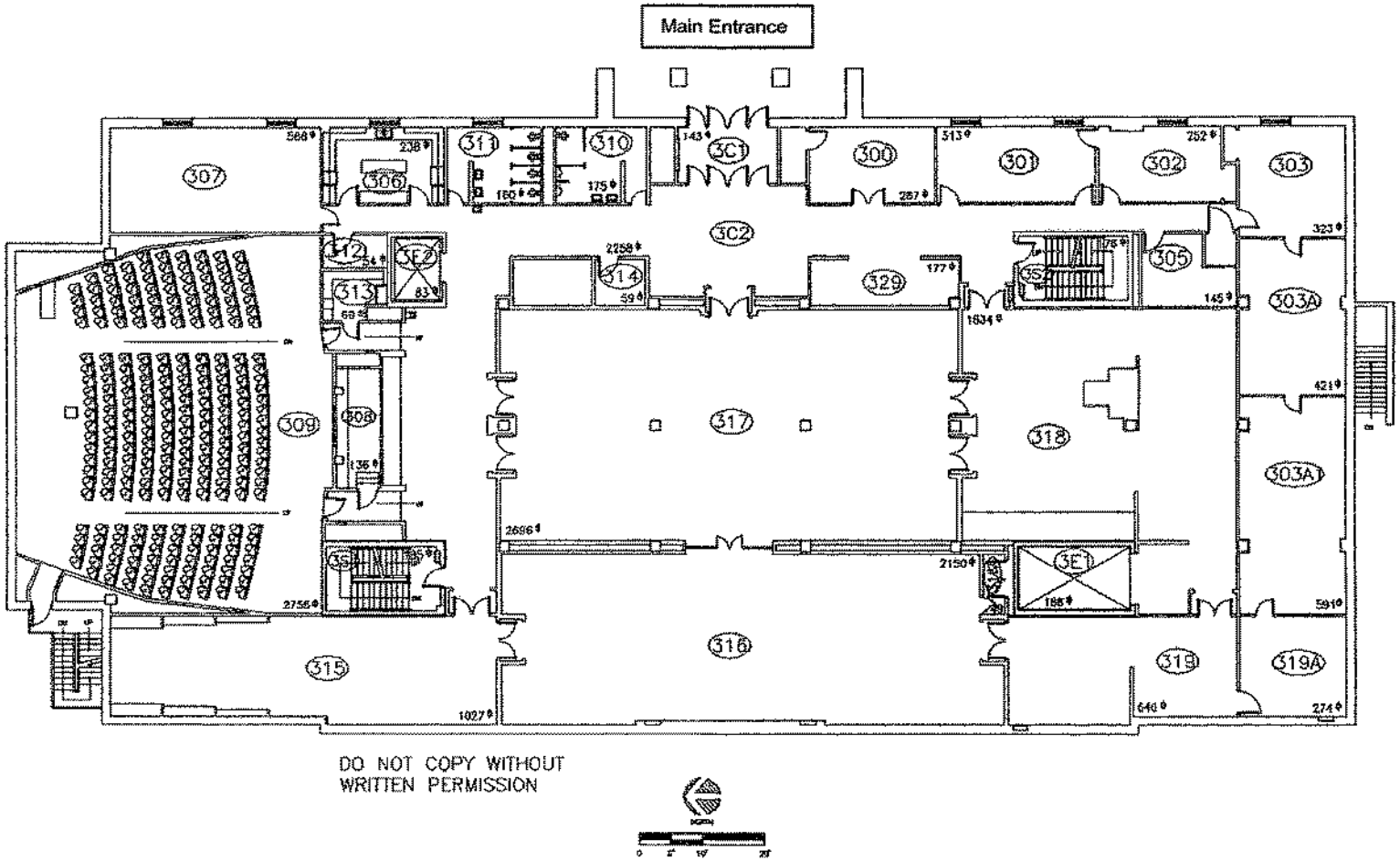


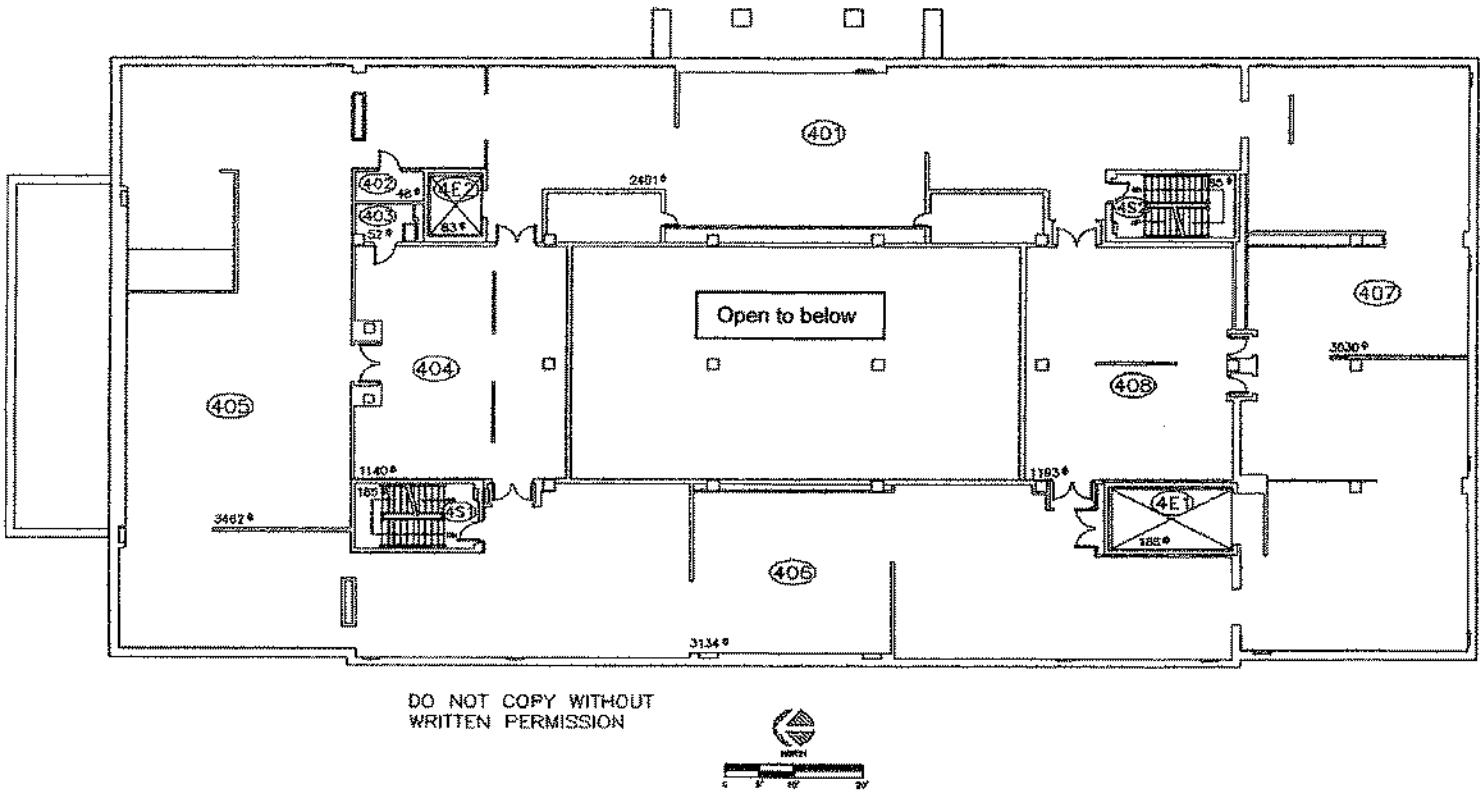
16-91

Existing Third Floor Plan



16.92

Existing Fourth Floor Plan



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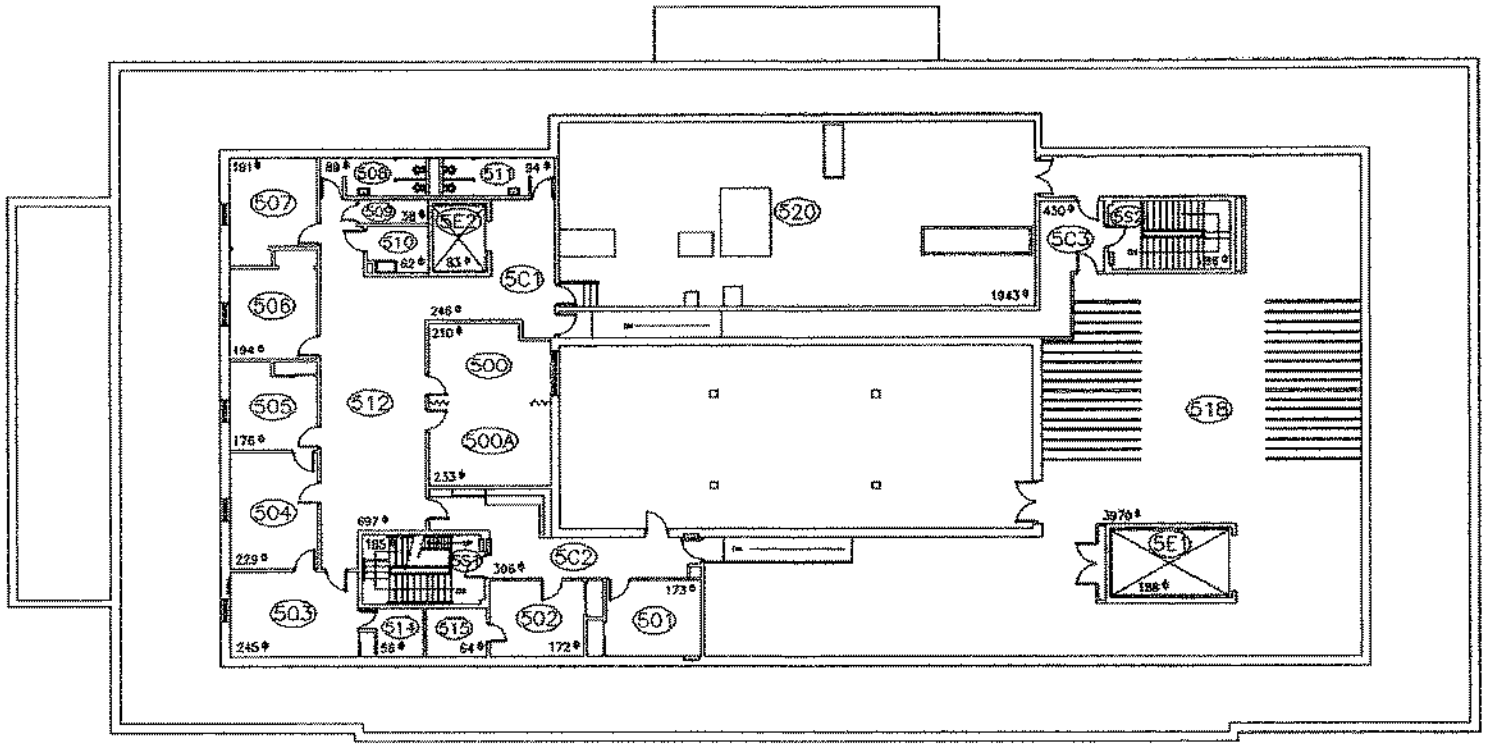
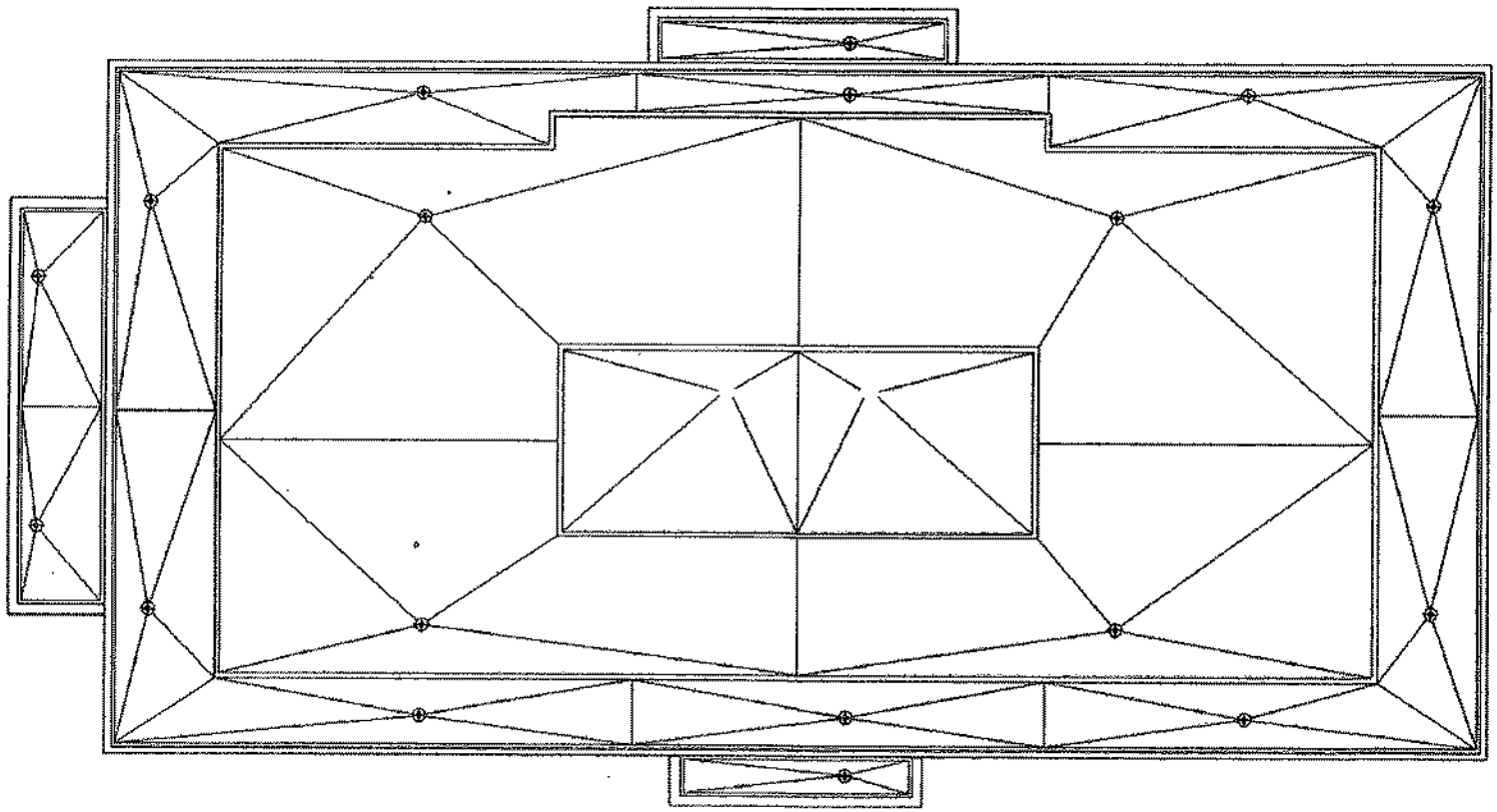
Existing Fifth Floor Plan



16-94

Existing Roof Plan



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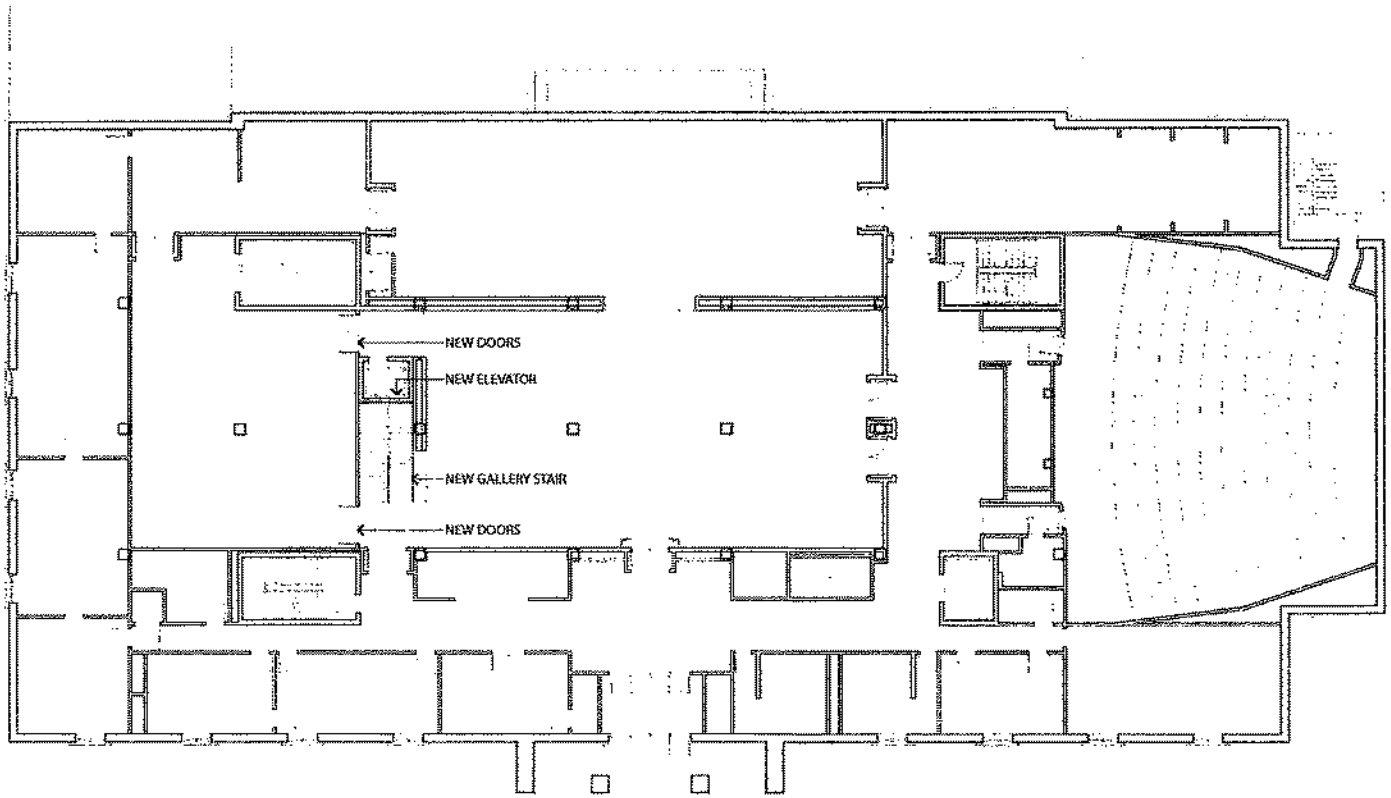
Proposed Third Floor Plan – Stairs & Elevator



Level 3 Floor Plan

First Phase
Renovation/Expansion Options

1. **New Stair/Elevator Connection Between Levels 3 & 4**
   - Location adjacent to Gallery Court 317 and Gallery Orientation 408
   - New stair, wood treads and glass rails
   - New elevator, reframing at Level 4 structure for floor openings for elevator and stair, new alignment of balcony slab edge
   - Framing for elevator pit at Level 3 slab and allowance for repartitioning and refinishing at Level 2 area below impacted by pit (vestibule to Photography 206 and Crate Storage 218E)
   - Reconstruction of existing Level 4 solid balustrade, enclosure of elevator, stair
   - Drywall finishes throughout, patch and repair floors, walls, ceilings
2. **New Study Center**
3. **New Skylights**
4. **Gallery Court General Refurbishment**
5. **Gallery Lighting**
6. **New Entry at Gallery Court**
7. **New Main Entry and Enlarged Entry Foyer**
8. **New Portico Entrance**
9. **New Feature Window**

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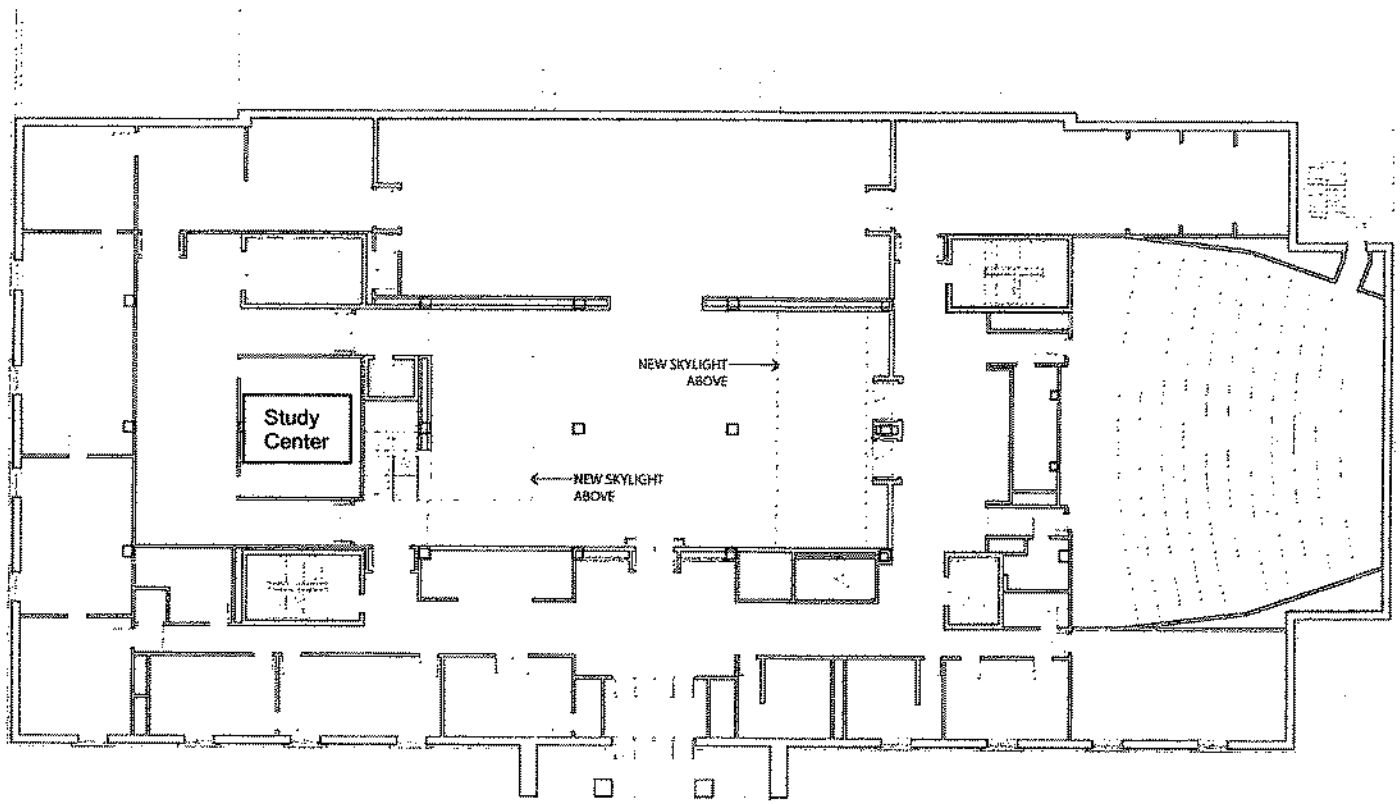
Proposed Third Floor Plan – Skylights & Study Center



First Phase
Renovation/Expansion Options

1. New Stair/Elevator Connection Between Levels 3 & 4
2. New Study Center
3. New Skylights
   (3B) Both skylights as shown
4. Gallery Court General Refurbishment
5. Gallery Lighting
6. New Entry at Gallery Court
7. New Main Entry and Enlarged Entry Foyer
8. New Portico Entrance
9. New Feature Window

Level 3 Floor Plan

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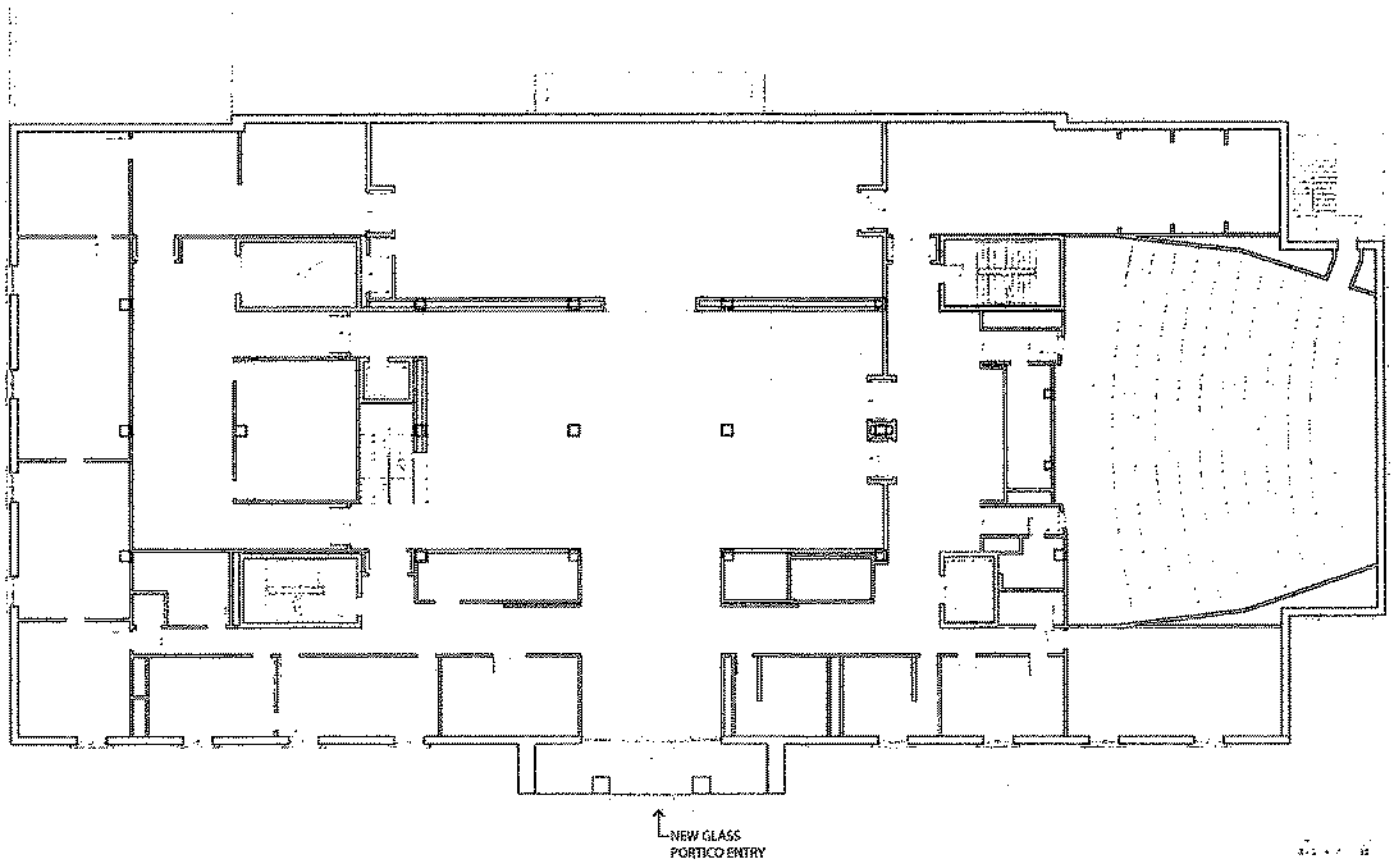
Proposed Third Floor Plan – New Portico Entrance



First Phase
Renovation/Expansion Options

1. **New Stair/Elevator Connection Between Levels 3 & 4**
2. **New Study Center**
3. **New Skylights**
4. **Gallery Court General Refurbishment**
5. **Gallery Lighting**
6. **New Entry at Gallery Court**
7. **New Main Entry and Enlarged Entry Foyer**
8. **New Portico Entrance**
   - Enclose existing portico with flush butt-glazed glass fin supported glass wall
   - New glazed-in space will serve as vestibule to the museum in lieu of 'pop-out vestibule'
   - New stone flooring and stainless steel walk-off grille
   - New lighting based on allowance of $X for lighting and controls only
9. **New Feature Window**

Level 3 Floor Plan

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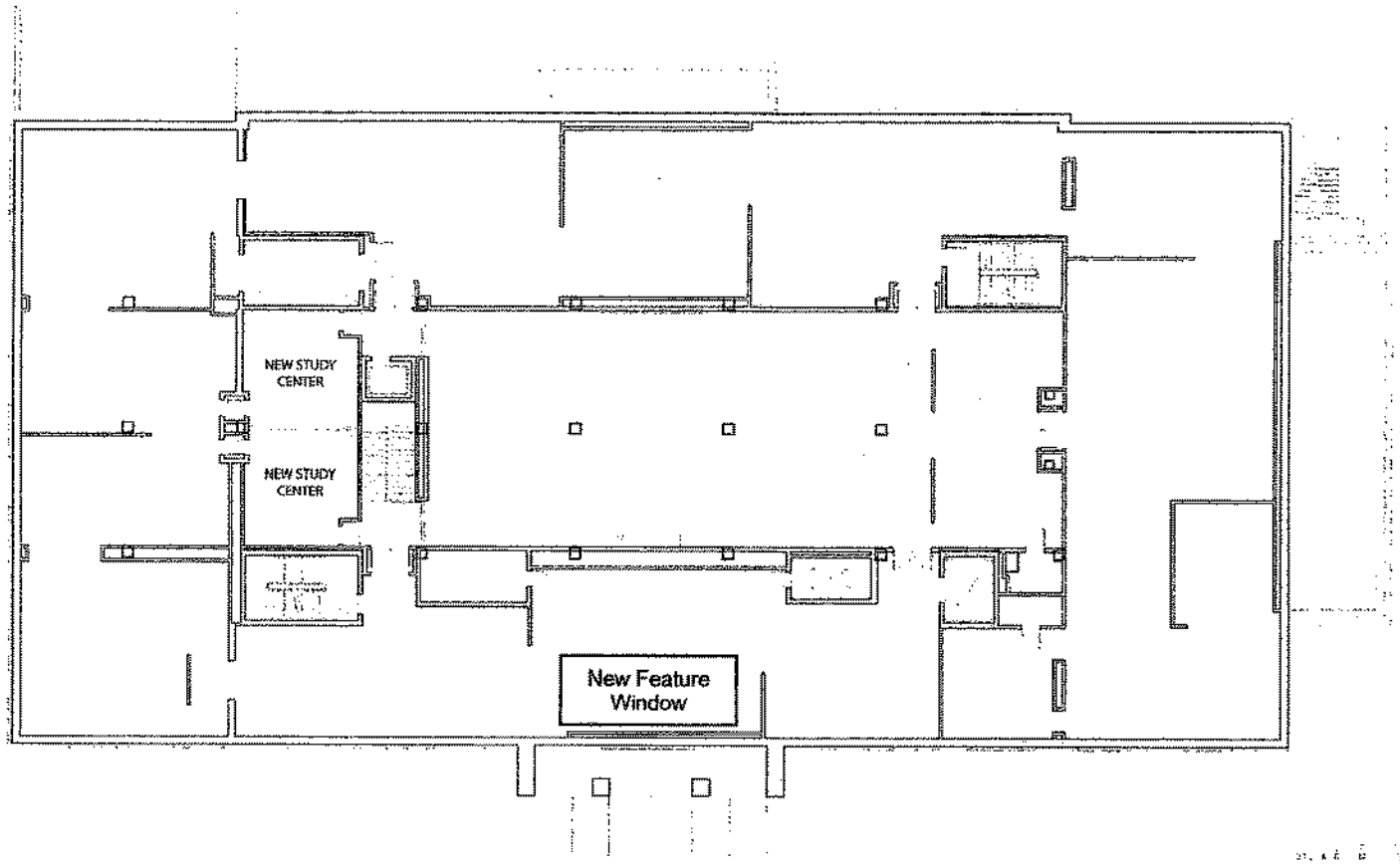
Proposed Fourth Floor Plan – New Study Centers



First Phase
Renovation/Expansion Options

1. **New Stair/Elevator Connection Between Levels 3 & 4**
2. **New Study Center**
   (2B) Locate new Study Center at Level 4 in location of Gallery 408
3. **New Skylights**
4. **Gallery Court General Refurbishment**
5. **Gallery Lighting**
6. **New Entry at Gallery Court**
7. **New Main Entry and Enlarged Entry Foyer**
8. **New Portico Entrance**
9. **New Feature Window**

Level 4 Floor Plan

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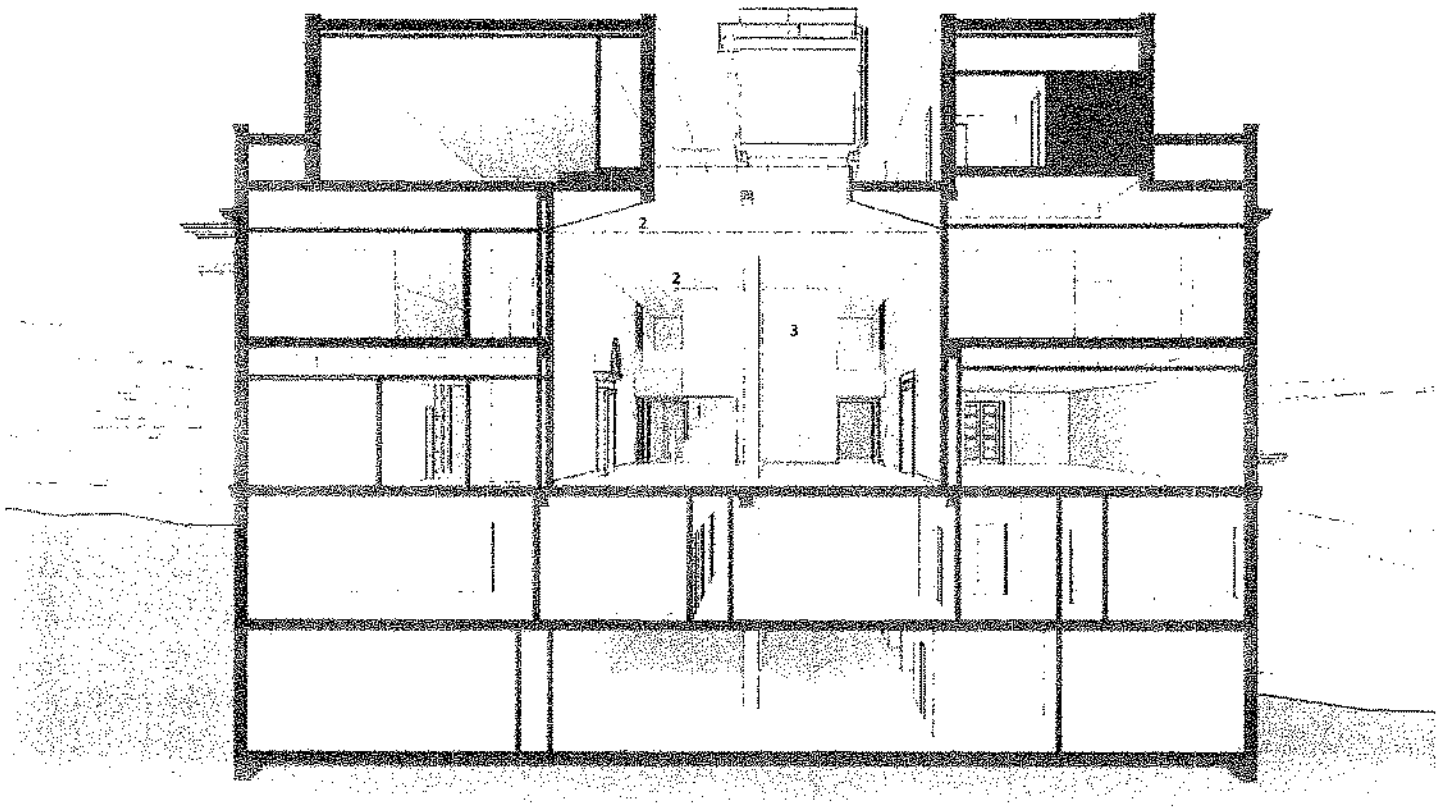
Proposed Building Section

1. New Gallery Stair
2. New Skylights
3. New Feature Wall



Gallery Court Section
New Gallery Stair & Elevator,
New Skylights

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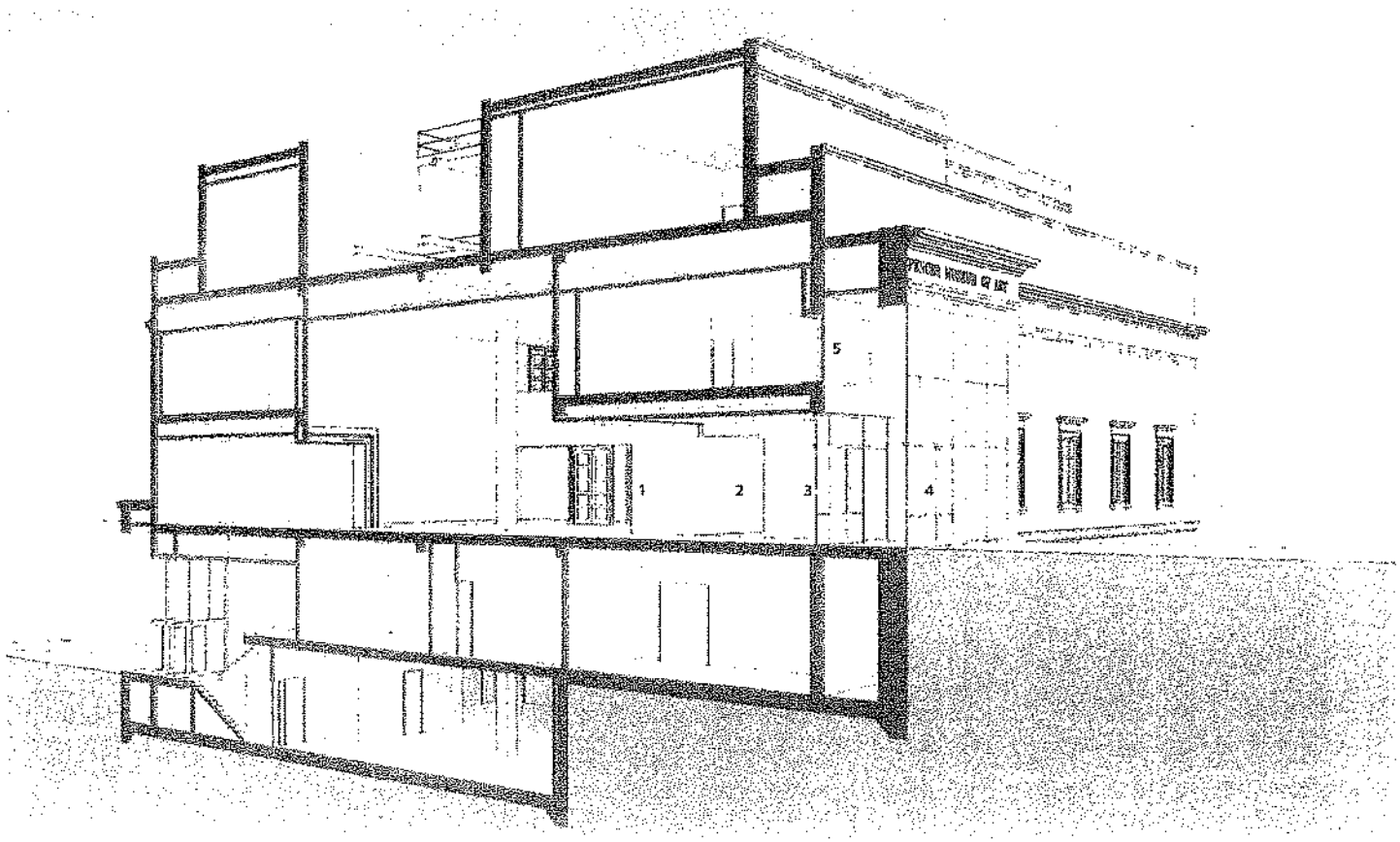
Proposed Building Section

16 - 10D



1. New Gallery Court Entry w/ Sliding Doors
2. Enlarged Foyer
3. New Main Entry
4. New Glazed Portico Entry
5. New Feature Window

Main Entry Section
New Gallery Court Entry,
Enlarged Foyer,
New Glazed Portico Entry,
New Feature Window

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Architectural Program

School of Business - New Building

KU Project No. 234-8585

Date: September 21, 2012
Revised: February 11, 2013

Prepared by:

The University of Kansas, Lawrence Campus
School of Business
Office of Design & Construction Management

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Programming Committee

Neeli Bendapudi, Dean, School of Business

Doug Houston, Associate Dean/Professor, School of Business

Jim Guthrie, William and Judy Docking, Professor of Business

Mark Strand, Administrative Assistant, School of Business

Jim Modig, University Architect & Director - Design & Construction Management

Laura Gagliano, Project Manager, Design and Construction Management

Tracy Horstman, Assistant Vice Provost, Capital Planning and Space Management

Tom Waechter, Director of Capital Planning, CPSM

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Introduction

Background and Purpose

The KU School of Business is transforming how business students are educated in the 21st century. To compete in a global market for students, faculty and staff, the School of Business leverages the mission and vision to serve the citizens of Kansas and their state and regional industries. The University of Kansas will grow and the School of Business will be a key component of this growth. Growth means higher rankings and a higher quality student. Therefore the vision of the School of Business is to be: ***a great place to learn, work, and invest***. This vision will be supported by world-class facilities second to none, aligning physical resources to support the goals of the KU School of Business.

A Great Place to Learn – Graduate Programs, Student Service and Community

The School of Business delivers business education across many programs. Key to the success of the School will be to build on the strength of each program by embracing the resources supporting them while enhancing the student experience.

Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- The proposed new building will support graduate education and specifically the Master of Accounting (MAcc) and Master of Business Administration (MBA) programs in several ways including:

- Acknowledging the uniqueness of the MAcc student profile by providing organizational adjacencies and spaces to better serve these students.

- Providing instructional space that specifically serves MBA students.

- Providing for a second cohort within the MBA program.

- Increasing academic advising space serving these programs by 189%.

- Providing dedicated doctoral student space.

- Providing dedicated lounge and study space for graduate students.

- The ability to highlight and showcase each of these programs within a new building's configuration.

- Computer "touchdown" locations throughout to access printers and digital media.

- Expanding the Student Career Center by 173% to better serve both Graduate and Undergraduate Programs. This will double the number of interview rooms, and include a recruiter's lounge and resource area.

A Great Place to Learn – Undergraduate Programs, Student Service and Community

The undergraduate program is the largest within the School and will continue to be the foundation of success and brand identity. This program also has the largest growth projections within the School and will now begin admitting freshman. The number of undergraduate students enrolled (headcount) is planned to increase 46% with credit hour production projected to increase 25% over the next five years. The number of graduate students is projected to increase by 51% over the next seven years. These statistics reflect an overall increase of 47% in the number of students enrolled. The key to elevating the quality of student will be directly related to the experience of the students.

The proposed new building will support the undergraduate program in several ways including:

• Enhancing access to student academic advising, increasing the number of advisors by 67%.

• Dedicated quiet study space for the undergraduate program.

• Providing an expanded Student Assistance Center of over 4,000 square feet of dedicated student help area for 40 teaching assistants, resource area and study space.

• Providing a growth of 164% in classroom space to accommodate the growth in undergraduate enrollment.

• Computer "touchdown" locations throughout the facility to access printers and digital media.

• Expanding the Student Career Center by 173% to better serve both the Graduate and Undergraduate Programs. This will double the number of interview rooms, and include a recruiter's lounge and resource area.

• Improved student organization and meeting space for 15 student organizations.

A Great Place to Learn – Team-Based Curricula

The School of Business has embraced the University's commitment to a dynamic educational model. The SCALE UP model is based on experiential, team teaching methodologies requiring a shift in space needs and configurations. The proposed new building will support this dynamic direction in several ways including:

• Instructional space that embraces the SCALE UP model for teaching, increasing the average assignable area per student seat from 16.4 to 21.0, a 128% increase.

• Pervasive technology integration facilitating collaboration and Learning.

• Providing 25 team study rooms for team collaboration outside the classroom.

• Providing specialized teaching spaces including a Communications Lab, Behavioral Lab, Systems Networking Lab, Financial Markets Lab and Small and Large Teaching Labs.

• Providing an increase in teaching space of nearly 170% over existing space to accommodate the substantial growth projections in enrollment.

• Providing a variety of teaching venues to support all the instructional needs within the School including seminar rooms, 40 and 60 seat classrooms, a 150 seat lecture hall and a 350 seat auditorium.

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A Great Place to Work – Interdisciplinary and Collaborative

The overall success of the School will be highly dependent on the ability to attract and recruit the best faculty and staff. Physical facilities can play a key part in this effort. The proposed new building will support this in several ways including:

• A design that maximizes daylighting as a key organizing element, providing narrow floor plates which allow visual access to the outside and natural light into every office space.

• Providing a flexible building planning module that will accommodate an endless array of office configurations and adjacency relationships between units and departments.

• Providing a series of spaces supporting a variety of function including: student faculty interaction areas within each departmental area; small break rooms within each departmental area allowing small informal gatherings; conference and meeting spaces ranging from 6 – 25 seats accommodating nearly 160 people at one time.

• Dedicated quiet lounge space for faculty and staff for 25.

• Growth in faculty and staff office space to acknowledge growth projections across all of the programs, including an additional 25 spaces for full-time, part-time and visiting faculty members.

• On-site food service with seating for 60 people.

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Design Concept Summary

Connecting Campus with Community

Through careful siting and design, the new School of Business building at the University of Kansas will maximize access to business education and interdisciplinary scholarship by providing a symbolic and physical link between the external business community and academic core of the KU campus. The new building will present a strong brand image and program identity for the School of Business to the local, regional and global community. It will provide a memorable new south gateway entry to the distinctive KU campus and most significantly, convey the School's goal to be the premier provider of business education in Kansas.

Understanding Campus

The historic core of the University of Kansas sits distinctively atop Mount Oread where the first structures were built directly from limestone quarried on site. Over time, a memorable ensemble of buildings have followed Jayhawk Boulevard from east to west across the ridge timelessly anchoring the KU Campus experience with a handsome material palette of warm gray limestone, red terracotta and blond brick.

All is set within a spectacular landscape of sweeping natural bowls juxtaposed with the formal outdoor rooms and walks of a large public campus. The planning team followed campus guidelines to study siting options for a new School of Business that will locate undergraduate and graduate programs close to the historic heart of campus, maximize trans-disciplinary collaborations with other professional schools and remain easily accessible to business visitors.

After a thoughtful examination of campus functions and character; including traffic patterns, parking locations, landscape zones, future campus buildings and other influences; the planning team arrived at a site and building organization concept that embodies the rich heritage of the KU campus and pushes forward the pedagogical objectives of the School of Business.

Business Building Concept

The new School of Business will be located at the transit & pedestrian-focused intersection of Naismith Drive and Schwegler Drive. This unique south gateway location, between Allen Fieldhouse and Watkins Health Center, and directly south of Robinson Recreation Center, will foster healthy campus connections between the historic education core atop the hill, the professional schools growing to the west and the sport/rec/student life facilities to the south, adjacent to Lawrence's residential neighborhoods.

The Business of Sustainability

Economic, social and environmental sustainability is an important part of the current and future business dialogue. The new University of Kansas School of Business will present an education and business model for high performance building, lowered operating costs and increased operating efficiencies while improving the health, well-being and productivity of our students, faculty and community. Shaping a healthy, productive environment for today's environmentally-savvy students and staff creates an opportunity to incorporate a sustainable philosophy into curriculum, overall school management and culture. A whole systems approach allows long-term efficiencies to be accounted for, monetized and integrated into project budgets.

The project design should support a sustainable economic scenario that incorporates operational savings, building productivity, brand value and external relationships into payback timeframes and return-on-investment goals.
A cross-disciplinary approach is fundamental to effective whole systems building design. By mapping out synergistic solutions between various project components and performing computer simulations for energy, water, and space planning, the design should achieve high-performing and simultaneously cost effective solutions.

The University of Kansas, School of Business is currently targeting LEED Gold Certification. Some of the sustainable design solutions that should be considered include:

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- High Efficiency Mechanical System including Ground Source Geo-Exchange.
- Daylight Design and Electronic Light Dimming System.
- Occupancy Sensors.
- Low VOC and Healthy Building Materials.
- Locally Sourced, Renewable or Recycled Building Materials.
- Low Flow and Dual Flush Fixtures.
- Green Roofs and Native, Drought-Resistant Landscaping.
- Sustainable Stormwater Management Systems.
- On-Site Renewable Power Generation, including Photovoltaics.

Space and Program Needs

Learning Environments

Classrooms	QTY	SF	Total SF
350 Auditorium	1	4900	4900
150 Small Lecture Hall	1	3000	3000
60 Seat Large Classroom	5	1380	6900
MBA Classroom	1	1150	1150
40 Seat Classroom	6	960	5760
25 Seat Seminar Room	5	625	3125
PhD Seminar Room	1	500	500
			25335
Labs			
Financial Markets Lab	1	1000	1000
Behaviorial Lab	1	750	750
Network Lab	1	375	375
Large Computer Teaching Lab	1	1500	1500
Small Computer Teaching Lab	1	1000	1000
			4625
Collaboration Spaces			
Breakout Rooms / Seating	4	500	2000
Total Learning Environments			**31,960**

Administrative Offices

Deans Office			
Dean	1	300	300
Associate Dean	1	175	175
Assistant Dean (Future Position)	1	140	140
Asst to Dean	1	140	140
Asst to Assoc Dean	1	140	140
Administrative Assistants	1	140	140
Student Assistants	1	100	100
Communications Director	1	140	140
Communications Coordinator	1	100	100
Events Coordinator	1	100	100
Reception/Waiting	1	300	300
Student Work Area (Comm)	1	150	150
Workroom/Storage	1	140	140
Conference Room	0	300	0
Dean's Executive Boardroom	1	600	600
Files Storage	1	100	100
Pantry	1	50	50
Internal Circulation	1	563	563
			3378
Financial Services			
Director 1 140 140			
Administrative Offices	4	100	400
Reception/Waiting	1	150	150
Student Work Area	1	100	100
Files/Storage	1	140	140
Internal Circulation	1	186	186
			1116
Information Technology Services			
Systems Administrator	1	140	140
Administrative Staff	1	200	200
Reception/Waiting	1	100	100
Student Work Area	1	150	150
Workroom	1	140	140
IT Storage/Checkout	1	140	140
Internal Circulation	1	174	174
			1044
Administrative Support Services			
Administrative Coordinator	1	100	100
Student Worker	1	50	50
Copy/Mail/Supplies/Recycle Service	1	700	700
Storage	1	100	100
			950
Total Administrative Offices			**6,488**

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Student Advising Offices

Undergraduate Programs	QTY	SF	Total SF
Assistant Dean	1	140	140
Administrative Offices	1	140	140
Administrative Staff	1	100	100
Student Work Area	1	140	140
Academic Advisors	10	100	1000
Files/Storage	1	140	140
Reception/Waiting	1	480	480
Conference Room	1	350	350
Internal Circulation	1	498	498
			2988
Multicultural Business Scholar Program			
Director	1	140	140
Administrative Support	1	100	100
Student Worker	1	50	50
			290
Masters of Accountancy (MAcc) Program			
Program Director (Faculty)	0	140	0
Administrative Director (Staff)	1	100	100
Academic Advisor	1	100	100
Administrative Offices	1	100	100
Reception Area / Waiting Area	1	160	160
Conference Room	0	180	0
Student Work Area	1	50	50
Files/Storage	1	50	50
Internal Circulation	1	112	112
			672
MBA Program			
Program Director (Faculty)	1	140	140
Administrative Director (Staff)	1	100	100
Administrative Offices	2	100	200
Reception / Waiting Area	1	210	210
Student Work Area (+Edwards Campus Stf)	2	50	100
Career Advisors	2	75	150
Conference Room	0	180	0
Files/Storage	1	50	50
3.4.9 Internal Circulation	1	190	190
			1140
Doctoral Program			
Program Director (Faculty)	0	140	0
Administrative Director (Staff)	1	100	100
			100
Total Student Advising Offices			**5,190**

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Student Career Offices

Business Career Services Center			
Director (Jordan)	1	140	140
Administrative Offices	5	100	500
Reception/Waiting	1	100	100
Reception/Waiting (Receptionist = 60 sf)	1	450	450
Student Work Area	1	50	50
Interview Rooms	12	100	1200
Recruiters Lounge	1	150	150
Files/Storage	1	125	125
Resource Area	1	100	100
Conference Room	1	300	300
Advising Offices	0	100	0
Workroom	1	125	125
Internal Circulation	1	648	648
Total Student Career Offices			**3,888**

Area Faculty and Administrative Offices

AIS Department	QTY	SF	Total SF
Accounting Faculty	9	140	1260
Accounting Faculty	1	140	140
Accounting Lecturers	4	140	560
Accounting Lecturers – (PT)	2	70	140
Accounting Lecturers – (PT)	1	140	140
Information Systems Faculty	5	140	700
Information Systems Lecturers	1	140	140
Information Systems Lecturers - PT			
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150
Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	1	120	120
Workrooms/Files/Copy	1	175	175
			5040
FEDS			
Finance Faculty	9	140	1260
Finance Lecturers	3	140	420
Finance Lecturers - PT Share	1	100	100
Economics Faculty	2	140	280
Economics Lecturers	1	125	125
Economics Lecturers - PT	1	100	100
Economics Lecturers - PT Share	1	140	140
Decision Sci./Supply Chain Fac.	4	140	560
Dec Sciences/SCM Lecturers	2	140	280
Dec Sciences/SCM Lecturers – (PT)	2	100	200
Dec Sciences/SCM Lecturers – (PT) Share	1	210	210
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150
Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			5655
MGMT			
Human Resources Faculty	3	140	420
Human Resources Lecturers	1	140	140
Human Resources Lecturers - PT Share	1	140	140
International Business Faculty	3	140	420
International Business Lecturers	1	140	140
International Business Lecturers - PT Share	1	140	140
Organizational Behavior Faculty	5	140	700
Organizational Behavior Lecturers	3	140	420
Organizational Behavior Lecturers – (PT Share)	1	140	140
Strategic Management Faculty	3	140	420
Strategic Management Lecturers	1	140	140
Strategic Management Lecturers - PT Share	1	140	140
Area Director	1	160	160
Future Faculty	3	140	420
Visiting Scholars	1	150	150
Administrative Support	1	125	125
Student Work Station	1	50	50
Reception Area	1	150	150
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			5340

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	QTY	SF	Total SF
MEL			
Marketing Faculty Offices	7	140	980
Marketing Lecturers	1	140	140
Marketing Lecturers - PT Share	1	140	140
Entrepreneurship Faculty Offices	1	140	140
Entrepreneurship Lecturers	0	140	0
Entrepreneurship Lecturers - PT Share	1	210	210
Entrepreneurship - Student Consulting	1	140	140
Business Law Faculty Offices	3	140	420
Business Law Lecturers	1	100	100
Businsss Law Lecturers - PT Share	0	0	0
General Business Lecturer	1	140	140
Area Director	1	175	175
Future Faculty	3	140	420
Visiting Scholars	1	140	140
Administrative Support	1	100	100
Student Work Station	1	50	50
Reception Area	1	200	200
Conference Room	1	750	750
Student Faculty Interaction	0	120	0
Workrooms/Files/Copy	1	175	175
			4420
Doctoral Students			
PhD Students	23	100	2300
Shared Departmental Resources			
Faculty Resource Area	0	180	0
Kitchen/Breakroom	2	150	300
			300
Dept Admin Internal Circulation	1	4639	4639
Total Dept. Administrative Offices			**27,694**

Centers and Outreach

	QTY	SF	Total SF
Small Business Development Center (SBDC)			
Director	1	140	140
Administrative Support	1	100	100
			240
Entrepreneurship Center			
Director	1	140	140
Administrative Support	1	100	100
Faculty Lecturer	2	125	250
Faculty Lecturers - PT Share	1	125	125
Student Work Station - Jayhawk Consulting	1	125	125
			740
Institute for International Business			
Faculty Director	0	140	0
Staff Director	1	125	125
Administrative Support	1	125	125
Language Center & Resource Center	1	125	125
			375
CIMBA Study Abroad			
Director	1	125	125
Student Work Station	1	50	50
			175
CARAT			
Director	0	140	0
Administrative Support (Student)	1	50	50
			50
Center for Applied Economics			
Director	1	140	140
Administrative Support	0	50	0
			140

	QTY	SF	Total SF
Center for Business Ethics			
Director	1	140	140
Administrative Support	0	50	0
			140
Student Incubator/Franchise Center			
Director	1	140	140
Administrative Support	0	50	0
			140
Center for Executive in Residence			
Executive in Residence	1	140	140
Administrative Support	0	50	0
			140
Shared Centers Support Areas			
Reception/ Waiting	1	160	160
Administrative Support	3	50	150
Conference Room	1	250	250
Breakroom/Kitchenette	1	125	125
Workroom/Files/Storage	1	100	100
Internal Circulation	1	157	157
			942
Distance Learning Studio - Media Support			
Distance Learning/Media Support Studio	1	300	300
Technology Support	1	200	200
			500
Total Centers and Outreach			**3,582**
Common Areas			
Commons Areas			
Common Community Gathering	1	4500	4500
Lobby	2	300	600
Hall of Fame	1	400	400
Colloquium	1	2000	2000
Storage	1	500	500
Computer Touchdown	2	100	200
			8200
Food Service			
Seating	1	720	720
Servery	1	432	432
Kitchen	1	269	269
Storage	1	173	173
			1594
Lounge			
Faculty/Staff Lounge	1	500	500
Quiet Student Lounge	1	1000	1000
MBA/Graduate/Alumni Lounge	1	625	625
			2125
Student Organizations			
Organization Spaces	15	30	450
Meeting Area	1	375	375
Storage Areas	1	100	100
			925
Total Common Areas			**12,844**
Learning Support			
Student Assistance Center			
Teaching Assistants Offices (TA's)	34	70	2380
Teaching Assistant Office (TA)	1	100	100
Help Room	1	875	875
Waiting/Studying Area	1	500	500
Resource Support Area	1	200	200
			4055
Student Assistance Labs			
Open Student Computer Lab Monitors			
Open Student Computer Lab	1	1250	1250
			1250
Shared Student Support Spaces			
Team Rooms	25	150	3750
Graduate Lockers and Changing Rooms	0	6	0
			3750
Total Learning Support			**9,055**
Total Assignable Areas			***100,841***

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Exterior Areas

Entry Plaza
School of Business Courtyard
Roof Top Terraces

Non-Assignable Areas

Non-Assignable Areas		
Building Circulation Systems	1	28235
Vestibules	2	1000
Restrooms	1	4034
Housekeeping	1	1008
General Building Storage	1	3000
Receiving/Loading Area	1	2000
Mechanical Systems	1	9668
Mechanical Equipment		
Mechanical Shafts		
Electrical Systems	1	5525
Electrical Equipment		
Electrical & Telecommunication Closets		
Structure/Exterior Walls/Partitions	1	10872

Total Non-Assignable Areas ***65,342***

Total Proposed Gross Building Area 166,183 GSF

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Site Improvements & Infrastructure

Site Improvements

- Parking: Existing parking to the south of the site shall remain unchanged.
- Trash and Service Drives: Provide new trash dumpster locations and service drives as required to serve the new facility. Dumpsters shall be screened from public view.
- Bus Stops: The bus stop is currently at the corner of Schwegler and the parking lot drive. Maintaining adequate drop off and pick up areas and integrating this into the design is an important consideration.

Utilities & Infrastructure

- Extensions of the utility services shall be included as part of this work, as required to serve the new facilities.
- Relocation of underground utilities will be required to achieve maximum site utilization.
- A Site Utilities map will be provided by the University.

Existing Utility Tunnel

The existing utility tunnel may have to be extended to accommodate bringing steam and low voltage to the site.

Hazardous Materials

- This site is currently occupied by tennis courts, there is no abatement anticipated at this time.

Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Kansas Dept. of Agriculture (KDA), Kansas Food Code, 2005 edition.
  - Other codes as listed at the State of Kansas, Office of Facilities and Property Management (OFPM) website.
  - Code Footprint templates shall be furnished to the architect on DCM's standard 11x17 code footprint sheets.
  - The architect shall update these drawings to reflect all proposed work and submit them for approval to OFPM through the KU-DCM office, immediately following approval of the Design Development phase, at the latest.
  - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
  - The building shall be fully protected by fire sprinkler and fire alarm systems throughout. Fire alarm shall comply with current code and KU requirements for an intelligent addressable system.

Historic Preservation Reviews

This existing building is <u>not</u> located within 500 feet of any properties currently listed on either the State or National Registers of Historic Places.

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Design Standards & Consultant Services

- The consultant team shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM).
  - These standards are available at the DCM website: http://www.dcm.ku.edu/desstds/stds.htm
  - The consultant team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The University's Project Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A-E and Contractor.
- Special Consultants that will be required on the A-E team, in addition to the usual architectural and engineering disciplines:
  - Acoustical Engineer (to evaluate and advise on sound isolation provisions from M/E rooms and equipment, and the acoustical requirements of meeting spaces)
  - Telecommunications System Engineer (must be pre-approved by KU-NTS)
  - Food Service Consultant (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
  - Audio/Video Vendor / Installer (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
  - Furnishings Vendor / Installer (to be selected by KU, with input from the consultant team, but shall be contracted directly to the A/E consultant).
- Electronic Files: Consultants shall deliver to KU complete sets of electronic files for the drawings and manuals / specifications for each design review submittal, and for the bid sets and as-built sets.
  - Each set of electronic files shall include both PDF and AutoCAD .dwg files for each drawing sheet.
- Physical or 3D/CAD models, if produced by the consultant to explain the design, shall be delivered to and remain the property of the University.
  - Photo-realistic renderings will be required during the design phase to clearly communicate the proposed design options, for both exterior and interior spaces, and for the Owner's use in fund-raising, media distribution and other purposes.
- Contract: An American Institute of Architects B101 contract form, as amended solely by the University, will be used to contract for these professional services.
  - Copies of this contract template will be provided to each short-listed firm, along with the corresponding A201 General Conditions document that will be issued to the Contractor.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from fees collected by the School of Business. No additional state funding will be requested to cover these costs.

Space Standards & Utilization Analysis

This project will add approximately 166,133 GSF of new space to the University's space inventory.

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Project Budget

Construction Cost	
Estimated Cost of Construction	43,820,100
Estimated Infrastructure Costs	1,458,700
Design & Construction Contingency	3,575,700
	48,854,500
Miscellaneous Costs	
Fees - Consultants & State/KU Agencies	4,191,200
Printing & Shipping of Bid Documents	50,000
Construction Testing & M/E Commissioning	120,000
Furnishings	1,980,000
Equipment	4,075,000
Moving Expenses	NA
Owner Contingency	3,419,800
	13,836,000
Subtotal – Project Costs (August 2012 $$)	**48,854,500**
Inflation – August 2012 to December 2013	**3,050,075**
Total Estimated Project Cost *(rounded)*	**$65,740,000**

Notes:

1) The project will be funded with a combination of private funds and university resources. The university requests bonding authority in the amount of $65,740,000 to provide flexibility in the event of multi-year pledges.

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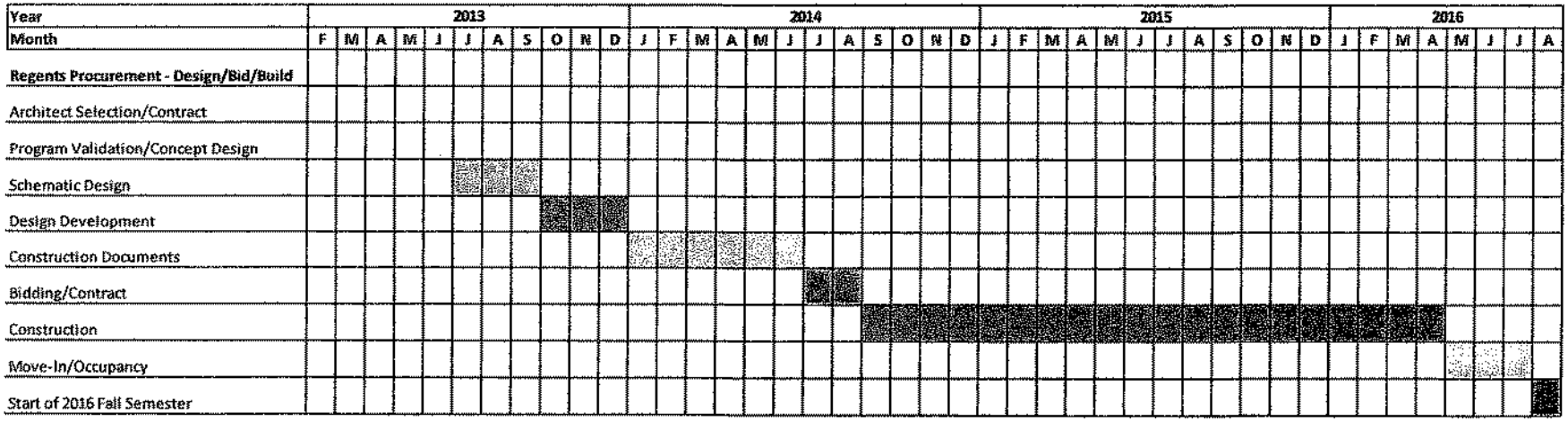
Proposed Project Schedule



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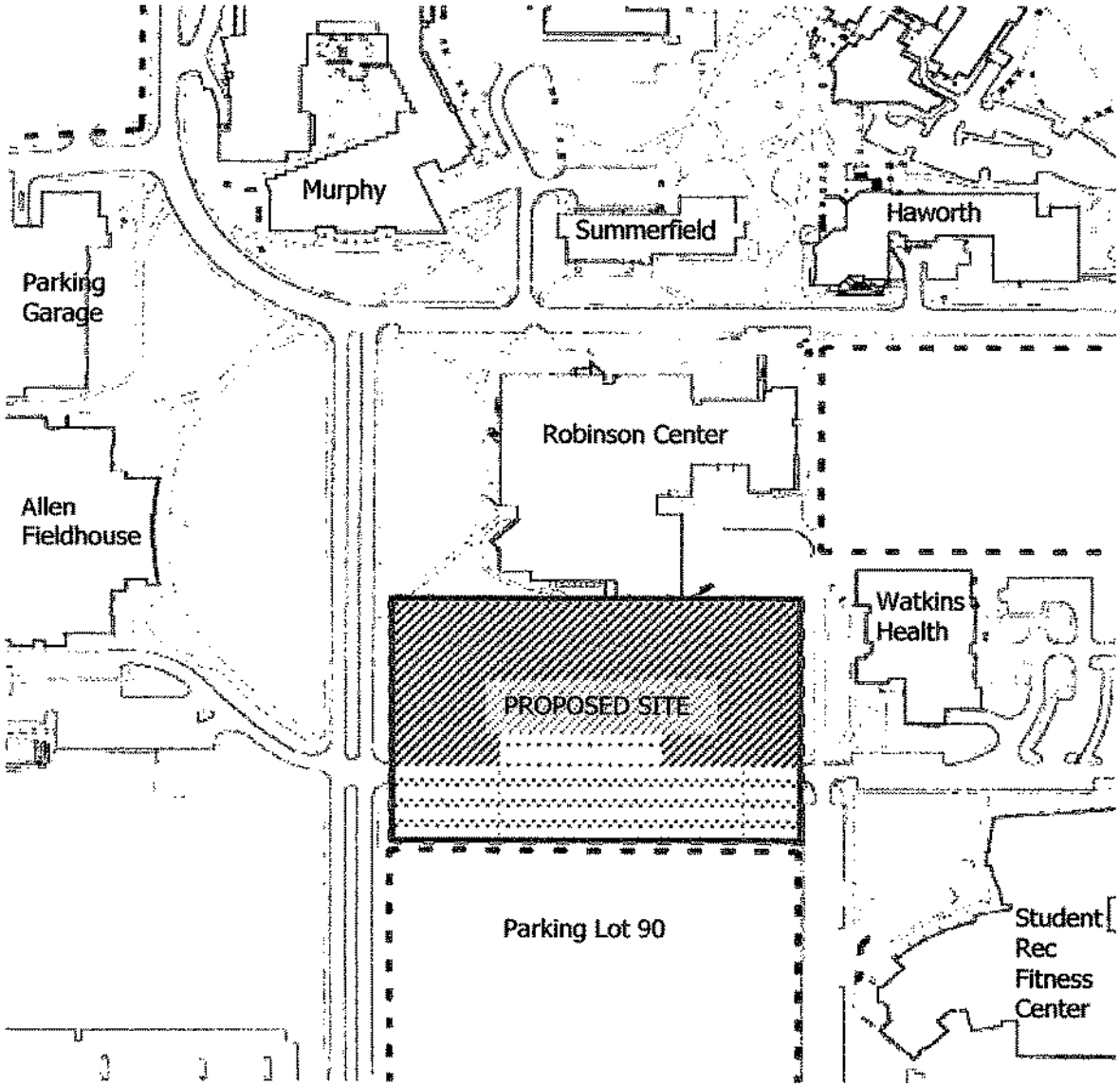
Proposed Site Location Plan



Date: September 21, 2012 * Revised Feb. 11, 2013

The Naismith Tennis Court site is located relatively close to other campus destinations and academic buildings. The location on Naismith Drive offers the potential for high visibility and a "gateway" building for visitors entering the campus from the south. Because of the adjacency to Allen Field House, there is strong potential for connection/synergy with the visiting alumni and the KU Basketball events. The building could potentially provide a pedestrian bridge connection across Naismith Drive.

- Major Storm Sewer Relocation located in central location of the site running South (Size 8'x3' @ 60" deep).
- Existing Storm in Schwegler may be relocated.
- Sanitary not affected - New building to connect to 12" PVC along new south project limits line.
- Water service available.
- No Fire Hydrant conflicts.
- IT location along Naismith Dr. not affected.
- Light/Electrical service lines to be relocated.
- No Gas line conflicts.
- Tennis courts to be relocated.
- Site to be accessed from Schwegler Dr., which may be relocated south.
- Relatively flat site.

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Architectural Program

Watkins Memorial Health Center -
Replace Outdated Mechanical and Electrical Equipment

KU Project No. 147-10228

Date: September 25, 2013

Prepared by:

The University of Kansas, Lawrence Campus
Watkins Memorial Health Center
Office of Design & Construction Management

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Programming Committee

Diana Malott, Assoc. Director, Watkins Memorial Health Center

Jim Modig, University Architect & Director, DCM

Steve Scannell, Asst. Director-Consultant Services, DCM

Laura Gagliano, DCM Architectural Project Manager

Gary Lawson, DCM Engineering Project Manager

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Introduction

According to KU historian Clifford Griffin, Chancellor Lindley "carefully cultivated [Elizabeth Watkins'] good will and nurtured her natural generosity" during the late 1920s, and in the fall of 1930, she agreed to give the University an astonishing $175,000 to construct, fully furnish and maintain a first-rate student health facility on campus. "I wished to contribute," she later recalled to the Star, "to the welfare of the thousands of students here in the years to come, long after I have gone from the scene. With a properly equipped hospital and a corps of health experts here on campus and at the service of every student, they may learn how to care for their health, upon which their future success and happiness would largely depend." This donation certainly met a crying campus need.

For much of the University's early history, on-campus health care was non-existent. The 46-bed Watkins Memorial Hospital, the gift of Elizabeth Miller Watkins and named for her late husband, changed all that. Accepting its first patients on December 28, 1931, and officially dedicated during Commencement ceremonies the following June 5, it was situated immediately southeast of Watson Library and contained a full-time staff, an operating room, examination rooms, and even a pharmacy. (The building is now Twente Hall, having been renamed prior to the 1974 opening of the new Watkins Memorial Health Center.) Griffin notes that the Hospital's first director, Dr. Ralph I. Canuteson, "boasted that the only university hospital in America that might surpass it was that of the University of California at Berkeley."

By the 1960s, the university had outgrown Watkins Memorial Hospital. The hospital could not be expanded because of its hillside site, so a larger and more modern hospital was planned for the playing fields southeast of Robinson Center. George Hampton & Associates of Wichita and State Architect Kenneth R. McCain designed the dark brick building with medical director Raymond A. Schwegler. It cost $3.65 million, paid largely by student fees, and retained the original name.

Its 60,000 square feet included 34 inpatient beds; a clinic; a laboratory and X-ray facilities; a pharmacy; allergy and immunization, physical therapy and psychiatric treatment areas; and administrative and business offices. The Ralph I. Canuteson Memorial Library is named for the first student health director (1928-65). In 1988 the facility's name was changed to Watkins Memorial Health Center.

A major $5.6 million expansion and renovation, designed by Lawrence R. Good & Associates of Lawrence and completed in 1997, created more physicians' examining rooms, a gynecology clinic, a men's clinic, and an urgent care clinic. The health center offers treatment and educational programs in general medicine, sports medicine, nutrition, allergy management, physical therapy, immunizations and radiology. A wellness resource center offers education and support in nutrition, fitness, alcohol and drug use, sexual behavior, and stress management.

Guiding this growth, the SHS mission statement reads: *Located in Watkins Memorial Health Center, SHS provides comprehensive medical care and outreach programs through a team of dedicated professionals. As a student-focused, student-friendly center, our mission is to advance the quality of life for university students, improving academic performance and increasing retention.*

The clinicians and staff of SHS recognize the importance of personal care and individualized attention, yet we stay current with the ever-changing discipline of collegiate medical services. SHS works with many university departments to maintain our focus on serving students and is part of the Office of the Vice Provost for Student Affairs.

Project Overview

Many of the mechanical and electrical systems are original to the 1997 renovation. Some components even date back to the original building of the early 1960's. Much of this equipment is seriously outdated, beyond its normal service life, end in dire need of replecement for energy efficiency, for life cycle function, and for overall comfort of the users of the building.

Design Criteria and Goals

Goals for this project are as follows:

- Goal #1 - Replace all defective and non-functioning HVAC equipment with replacement equipment/systems to insure all occupied building spaces operate within acceptable comfort ranges.
- Goel #2 - Complete rigorous construction phase commissioning to verify and document that goal #1 has been accomplished.
- Goal #3 – Provide appropriate M&V elements to insure thet cost of building operation can be monitored, trended, and optimized.
- Goal #4 – Use appropriate best engineering practices in specifying, sizing, and arranging replacement M/E/P components to insure future equipment accessibility and serviceability.

Space and Program Needs

This program is the result of findings and recommendations of a fecility condition assessment that was completed in early 2013 by the commissioning team of Doyle Field Services, Inc. and Malone Finkle Eckhardt & Collins, Inc. The complete report, *KU Project #147-8759 – MEP Facility Assessment of Watkins Memoriel Health Center*, is available for review by persons interested in submitting statements of interest and qualifications for consulting services to assist the University in completion of this program scope of work.

A Summary Table identifying all major M/E/P system components, locations, and conditions is included in the appendices.

The original building was constructed as en acute care hospital. Over time, the use of the spaces has changed from the acute care type of fecility to more of an outpatient type of facility. As prior Architectural and MEP analyses have noted, many of the spaces are no longer being used for their originally intended use. The majority of the space uses have changed yet the physical layout/backbone for the space has not changed from the original configuration. The building MEP systems have not been modified for the changes in use.

A good example of these use changes is the original patient rooms for the facility. The majority of these room usages have changed from patient room to offices. The perimeter fan coil units end centrel air handling unit function have not changed. They remain as originally designed for patient room usages. Designers who review the existing MEP systems will encounter instances where a wall separating two patient rooms has been removed and the resulting space used as an office. The two zone thermostats that served the original patient rooms are still present attempting to properly serve a single office.

HVAC Systems

The heeting, ventilating and air conditioning systems (HVAC) for the building are in the same approximate configurations as when they were installed. There have been very few modifications to them. The double duct system that was appropriate for a hospitel Is not as appropriate for an office/clinic space even though it has been converted to variable air volume. The majority of the air handling equipment

in the building is past the end of its useful service life. The normal useful service life of air handling equipment is 20 years. The three units in the basement mechanical room are almost 40 years old. The air handling equipment for the addition is in good condition.

The 2-pipe fan coil units located on the second floor of the original building are well beyond their useful service life. Many of the units are not functional or not totally functional. Field work associated with the MEP Assessment included testing unit function by adjusting thermostat settings on a number of the units. Most tests results indicated that unit fans and/or unit control valves are not functioning correctly. If the existing system configuration is to be maintained, these fan coil units should be replaced.

Pipe and Pumping Systems

The original chilled water pumps, piping and insuletion are in poor condition. While the motors have been replaced on the pumps, their overall condition is poor. The photographs included in the MEP Assessment Report show a great amount of rust and corrosion which has formed on the piping and pump bodies. The vapor barrier on the majority of chilled water piping has failed.

The steam piping and traps within the building appear to be in good condition. There were no leaks noted. Some of the insulation on the steam piping around the air handing units is new indicating that some of the traps, and steam control valves and traps have been recently replaced.

Chiller and Cooling Tower

The water chiller was installed at the time of the 1995 addition. A typical centrifugal has a useful service life that exceeds 25 years. The chiller is in good condition and should continue to provide chilled water to meet the building cooling needs for years to come.

The cooling tower has reached the end of its service life. The weer on the tower is showing. There is a significant amount of calcification on the bottom of the fill. While the tower remains functional, replacement will be necessary in the near future. Additionally, the packaged pumping system for the cooling tower water is in fair to poor condition. The indoor sump which is pert of the pumping system appears to be leaking. Additionally, the sump is open to the mechanical room which is introducing humidity into the mechenical room which is having a negetive effect on the piping and equipment.

NOTE: The existing cooling tower failed in early September 2013, so KU Facilities Services proceeded with immediate replacement of the cooling tower and basin components. Designers will need to confirm the stetus of this pending replacement and determine the extent of related work which still needs to be included in this project scope.

Plumbing Systems

There has been significant repair and renovation work done to the domestic water piping within the building. This work has been required due to leaks in the piping necessitating these repeirs. The domestic water piping, domestic water heater, circuleting pumps, etc., has new insulation and hes been repleced recently. The water piping and waste piping is in good condition.

There are over 60 toilet rooms in the facility. The vast majority of these (ell but two) contain a single water closet and lavatory. The fixtures in all the toilet rooms are in good condition. Plumbing system work within this program scope will only be as necessary to facilitete renovation, replacement, end repair of other M/E systems.

Electrical Systems

The electhical system within the building is in good condition overall. The unit substation in the basement has been well meintained and updated with the manufacturer's electronics. The model numbers of the substation are current and parts are readily available. There are currently no data that describes the "service life" of electrical equipment. As long as parts are

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available and there are no operational problems with the equipment, it is viable to remain and does not need replacement. Maintenance personnel stated that the only problems they are having with the system are bad breakers in the original building. They further stated that the breakers are available and they replace them as needed. Some of the existing panels in the original building have had total breaker replacement recently. There are some that still have original breakers. These are the problem panels.

The lighting installed within the building is predominantly fluorescent. The fixtures are lamped with T-8 lamps, either 25 or 28 watt. There is a mixture of both types of lamps present in the building.

The generator appears to be in working order. There are not reports as to anything in the emergency power system that has operational issues. As with other M/E systems in the building, the generator size and specification was appropriate for support of the building as an acute care hospital, but is oversized for current needs. If the program budget is sufficient, or if other proposed M/E work dictates, the existing generator should be replaced with an outdoor-mounted diesel generator sized for life safety system support only.

Measurement and Verification (M&V) Elements

Funding for operation of the Watkins Student Health Center is student-fee funded. As such, annual operating budgets must cover cost of utilities used in building operation. The Designer shall include in the design of equipment and the documentation of protocols provisions that are necessary for measuring, documenting and reporting the building's usage of all consumed utilities: electricity, steam, water and natural gas. The Designer shall also conduct an evaluation of the actual consumed utilities relative to the consumption rates predicted during the design analysis, at least once after a complete cycle of seasonal heating/cooling performance has been documented, and shall advise the Owner on any adjustments that may be needed to maximize efficient performance.

Site Improvements & Infrastructure

Site Improvements

- No exterior sitework is proposed in the current project scope, except as required to support the indicated improvements.

Utilities & Infrastructure

- No modifications or extensions of the utility services to this building will be required as part of this work.
  - Existing mechanical / electrical equipment serving undisturbed portions of the building shall be maintained in service at all times, except for short-term shutdowns.
- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DSH and FS personnel, and others who may be affected.

Hazardous Materials

The KU Environmental Health & Safety Office will perform tests of existing materials which will be affected by the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

KU's standard policy is to remove all hazardous materials when undertaking major renovations of existing buildings.

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Deferred Maintenance

The Watkins Memorial Health Center is considered a mission-critical facility by the Board of Regents, and was assessed the following ratings in the *Kansas Board of Regents Report on Deferred and Annual Maintenance,* dated Fall 2012.

Condition Value: 78

The building evaluation determined by the most recent facility condition audit survey. Rating system standards are:

90 - 100 is Excellent; 80 - 89 is Good; 60 – 79 is Fair; 30 - 59 is Poor; 0 - 29 is Unsatisfactory

Facility Condition Index (FCI): 0.22

The FCI provides a simple measurement of a facility's condition. FCI represents the ratio of the cost to correct a facility's deficiencies to the current replacement value (CRV) of the facility. The higher the FCI, the poorer the condition of the facility. General industry guidelines are: 0.00 - 0.05 is good; 0.05 – 0.10 is fair; and greater than 0.10 is poor.

Proposed Work:

A detailed assessment of individual components has not yet been completed for this building, but the currently proposed project will address, at least in part, the following deferred maintenance items which have been identified as being in "Fair" or worse condition:

- Heating/Ventilation/AC & BACS
- Electrical systems

Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes as listed at the State of Kansas, Office of Facilities & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint templates of the existing buildings shall be prepared by DCM and furnished to the A/E on DCM's standard 11x17 code footprint sheets.
  - A/E shall update these drawings to reflect all proposed work and submit them for approval to OFPM thru DCM/UFMA, immediately following approval of the Schematic Design phase.
  - Electronic files of the approved code drawings shall be forwarded to DCM in both .PDF and .DWG formats.
- Construction Exiting: Temporary fire-rated exit corridors shall be provided through the construction site, if required to protect and direct occupants from all required exits in the surrounding occupied existing buildings to a public way. They shall remain in-place at all times while construction work is underway.
- The building fire sprinkler system shall be modified as required to maintain coverage throughout the building.
- Fire alarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

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Design Standards / Consultant Services

The architectural/engineering (A/E) team shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM), posted online at DCM's website at: http://www.dcm.ku.edu/standards

- The A/E team shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The A/E team shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.

- The Owner's Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A/E and Contractor.
- Special Consultants that will be required on the A/E team, in addition to the usual A/E disciplines:
  - Telecommunications Engineer (KU-IT pre-approved)
  - Acoustical Engineer (to evaluate & advise on M/E sound isolation provisions & meeting spaces)
- Electronic Files: Consultants shall deliver to KU a complete set of electronic files for all drawings and specs for each design submittal, bid set & as-built documents.
  - Each set of electronic files shall include both PDF and AutoCAD .dwg files for each drawing sheet.
- Models, if any, shall be delivered to and remain at KU.
- Contract: An AIA B101 contract document, as amended solely by the University, will be used to contract for the A/E services. A copy will be provided to each short-listed firm, along with the corresponding A201 General Conditions document to be used for construction.

Historic Preservation Reviews

The existing building is not located within 500 feet of any properties listed on the City, State or National Registers of Historic Places. The Kansas Legislature repealed the 500' historic environs review requirements in 2013. The City of Lawrence still requires environs reviews of properties within 250' of a property listed on the City's historic register, but reviews are only required if certain conditions are met. No environs reviews will be required for this project.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing Universlty resources. No new state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists primarily of the renovation of existing space. As such, this project will not add any new usable space to the University's space inventory.

Space Summary

Existing Building	60,000 GSF

Proposed Construction Method

The University of Kansas proposes to use a traditional but expedited design-bid-build process for this project. The Owner and consultant team shall jointly develop strict pre-qualification criteria, designed to ensure that contractors approved to bid this project have a proven track record of delivering similar projects, under a similar expedited construction timeframe, and successfully meeting those schedules.

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Project Budget

Construction Costs

Miscellaneous Patching	151,500
Cooling Tower Replacement *(replaced as emerg. maint.)*	--
Cooling Tower Support	8,200
Chilled Water Pumps	25,500
In-Line Pumps	27,600
Air Handling Unit Replacement	535,500
VAV Terminals	91,500
Fan Coils	85,300
Piping Repairs	153,000
Controls	122,000
Branch Panel Breaker Replacement (50%)	27,500
Subtotal	**$1,227,600**

Miscellaneous Costs

Fees - Consultants, State & KU Agencies	110,000
Printing & Shipping of Bid Documents; Misc.	10,000
Asbestos & HazMat Abatement (scope TBD)	5,000
Construction Testing & M/E Commissioning	20,000
Bidding & Construction Contingency (5%)	76,900
Subtotal - Miscellaneous Costs	**$221,900**

Total Project Cost	**$1,449,500**

Notes:

1) Proposed funding is from a pre-established student-fee-funded account established for Watkins Memorial Health Services facility improvements.

Project Schedule

KU Capital Projects Council Review & Approval	Sept. 2013
KBOR Review & Approval	Oct. 2013
Legislative Jt. Comm. Review	Nov. 2013
A/E Interviews & Selection	Nov. 2013
Negotiate Fees / Start Design	Dec. 2013
Submit Code Footprint (SD Submittal)	Mar. 2013
Code Footprint Approval	Apr. 2014
Complete CD's, submit for permit	May. 2014
Receive Bids; Award Contract	Jun. 2014
Construction Starts	July 2014
Construction Completion (6 Mos.)	Jan. 2014

BC1-11

Major Equipment Condition Summary Table

Equipment	Location	Condition	Notes
AHU S-1	Bsmt Mech Rm	Poor	
AHU S-2	Bsmt Mech Rm	Poor	
AHU S-3	Bsmt Mech Rm	Poor	
AHU -1	North Addition Penthouse	Good	
Chilled Water Pump #1	Bsmt Mech Rm	Poor	
Chilled Water Pump #2	Bsmt Mech Rm	Poor	
Hot/Chilled Water Pump #1	Bsmt Mech Rm	Poor	
Hot/Chilled Water Pump #2	Bsmt Mech Rm	Poor	
Hot/Chilled Water Pump #3	Bsmt Mech Rm	Poor	
Water Chilling Unit	Bsmt Mech Rm	Good	
Primary Chilled Pump	Bsmt Mech Rm	Fair	
North Addition Chilled	Bsmt Mech Rm	Fair	
Cooling Tower	On-Grade	Fair/Poor	
Cond. Water Pump	Bsmt Mech Rm	Fair	
Cooling Tower Indoor Sump	Bsmt MEch Rm	Fair/Poor	Indoor Sump appears to be leaking
Double Duct Terminals	Various Locations	Poor	Volume Dampers have been removed
VAV Dampers	Various Locations	Fair	Dampers are at the end of their service life
Steam-to-Hot Water Converter	Bsmt Mech Rm	Fair	Serves 2-pipe fan coil system
Fan Coil Units	Various Locations	Poor	
Main Electrical Switchboard	Bsmt Elec Rm	Good	
Branch Circuit Panels	Various Lcations	Good/Fair	Breakers which are original to the bldg. should be replaced

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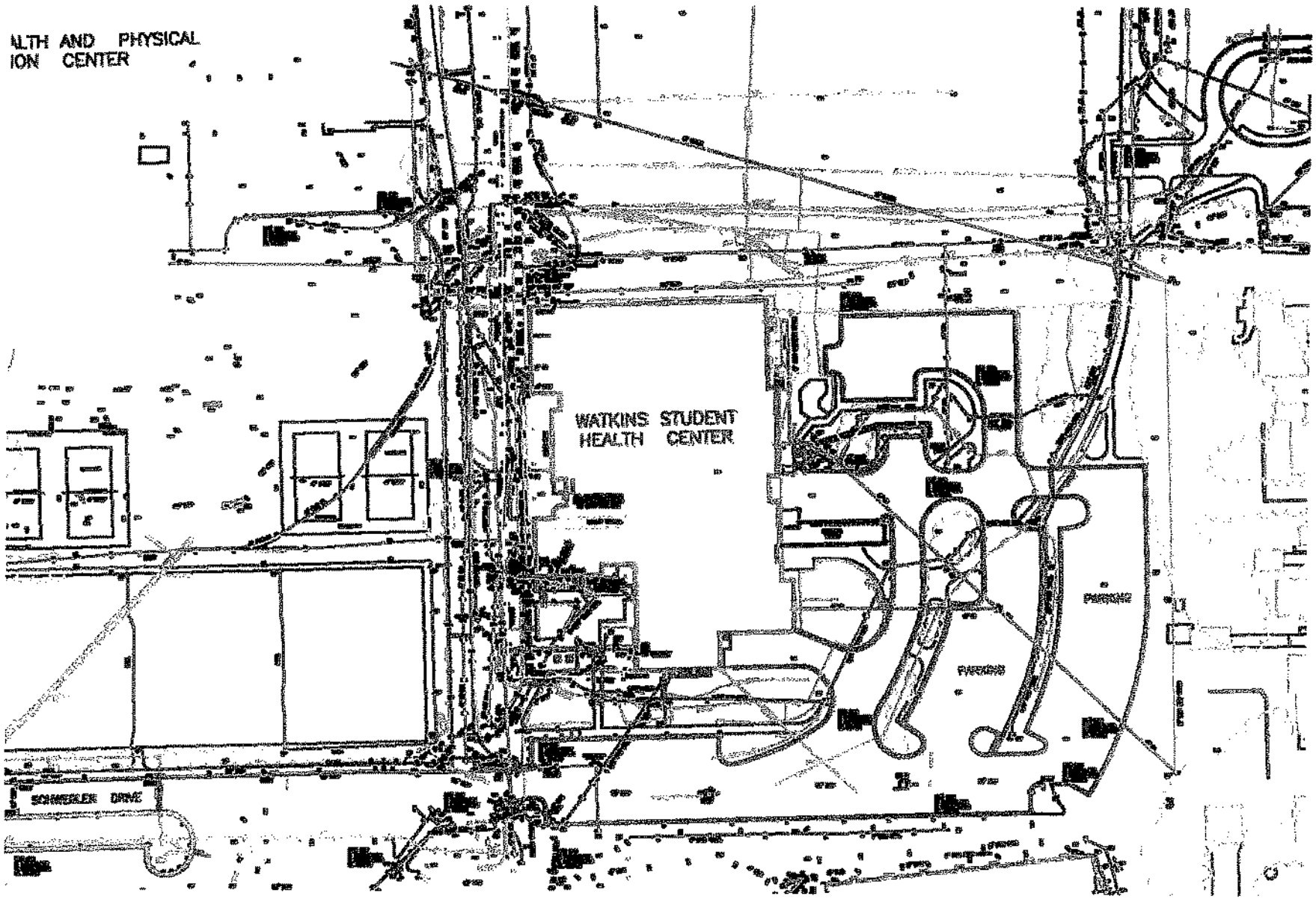
Existing Site Plan



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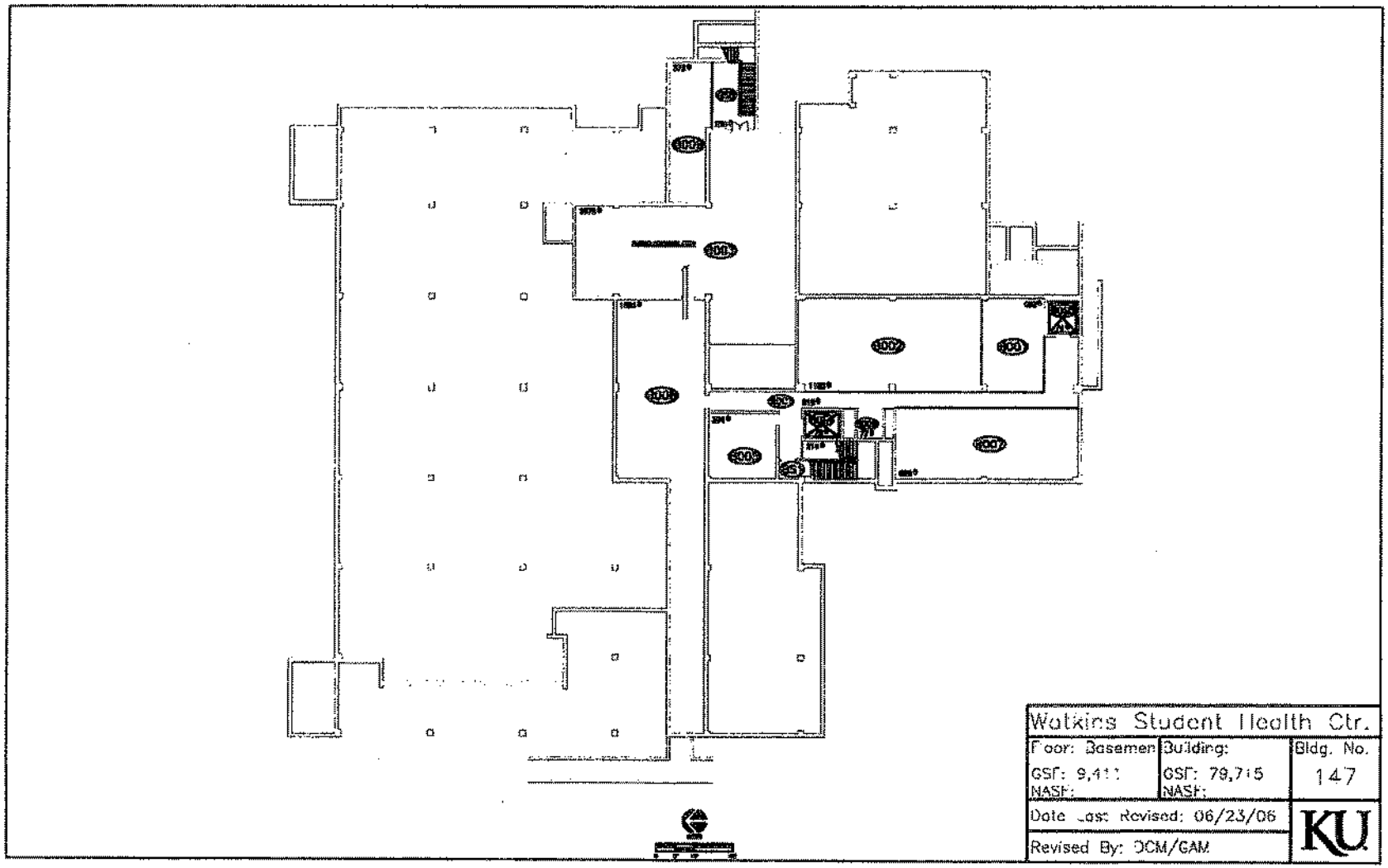
Existing Basement Floor Plan



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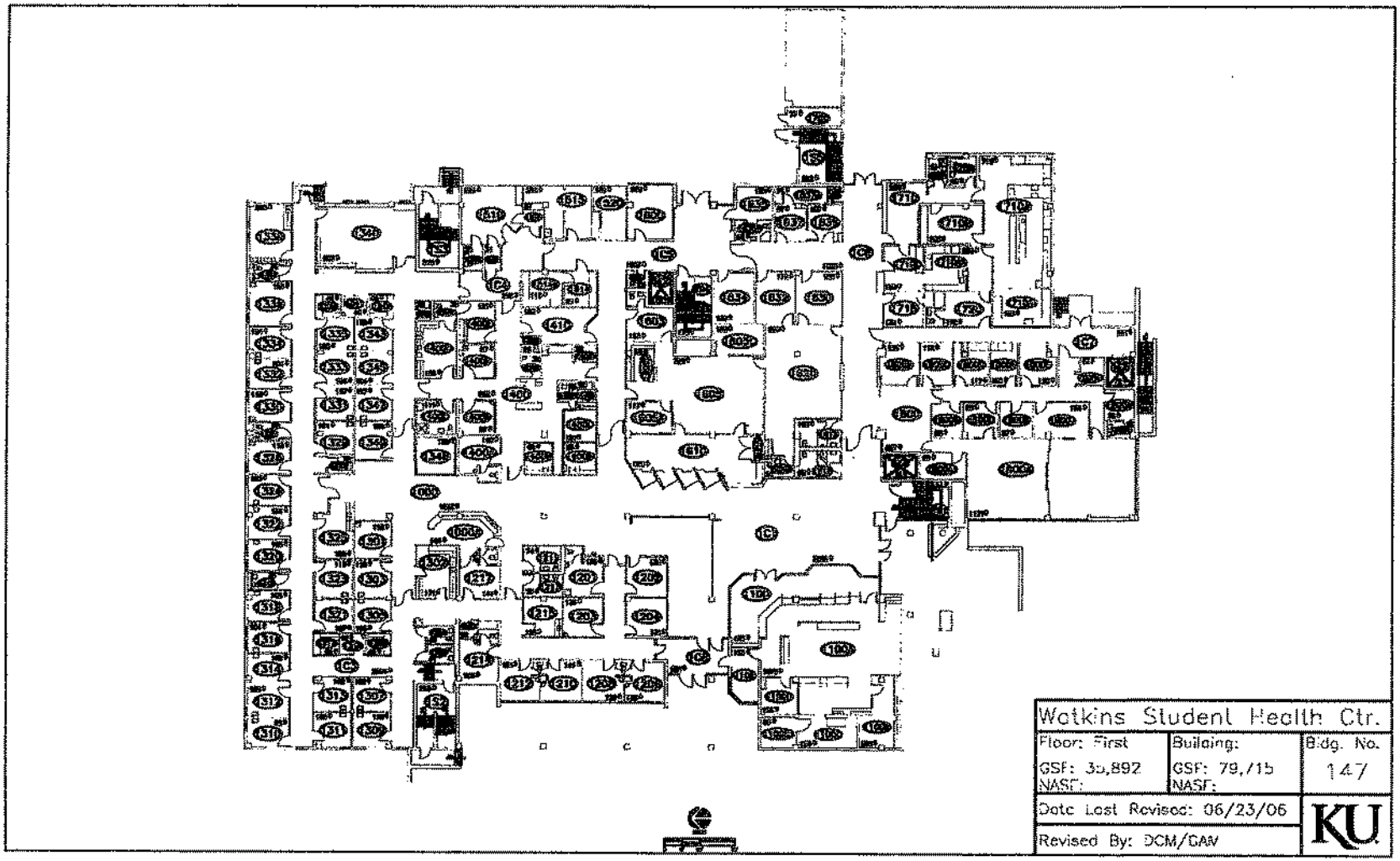
Existing First Floor Plan



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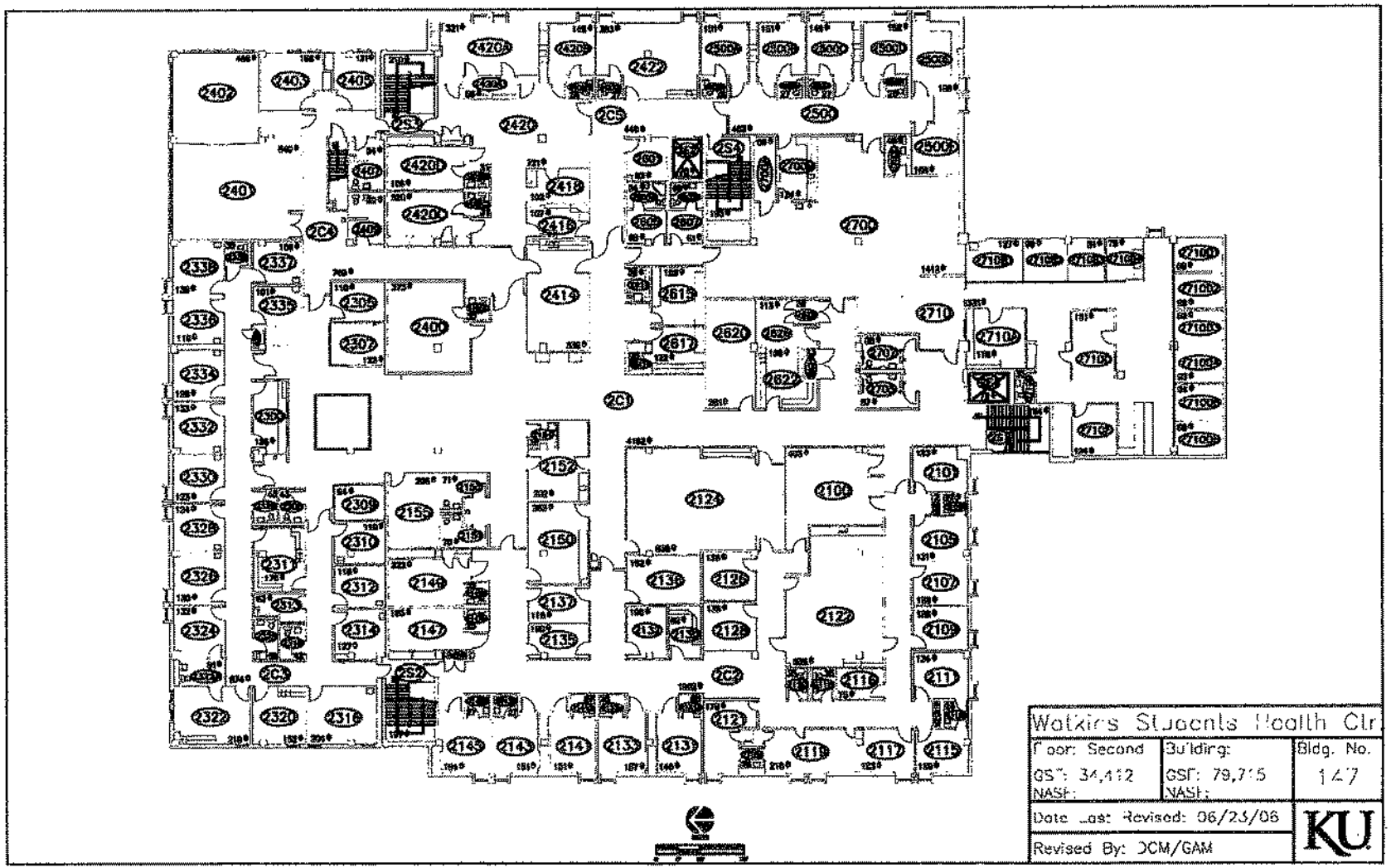
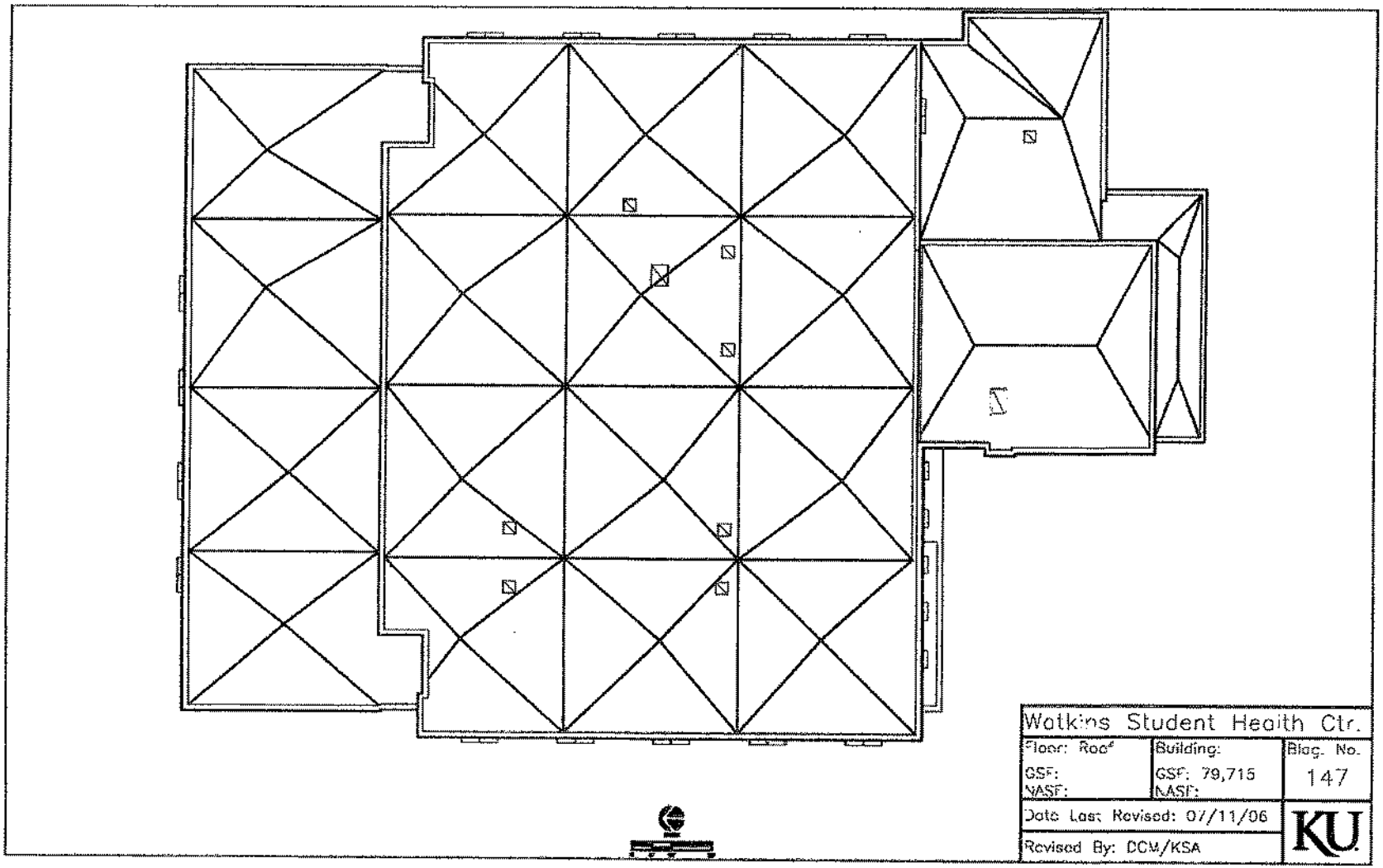
Existing Second Floor Plan



Existing Roof Plan



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Architectural Program

Oliver Hall
Plan of Correction- New Fire Sprinkler system

KU Project No. 095-9706

Date: October 1, 2013

Prepared by:

The University of Kansas, Lawrence Campus
Oliver Hall, KU Housing, Building #68200-00095
Office of Design & Construction Management

Programming Committee

Doug Carter, KU Housing

Bob Rombach, Fire Marshal, DCM

Jim Modig, University Architect & Director, DCM

Introduction

Oliver Hall is e 10 Story Dormitory Built in 1966

Project Overview

The Kansas State Fire Marshal has cited this building for not having a Fire Sprinkler system and has been on the retrofit list for 15 years. This project is to install a wet fire sprinkler system per NFPA 13 throughout and convert the existing center dry standpipe to wet connecting it to the automatic sprinkler system. The two other dry standpipe systems at the end of the wings will remain independent dry standpipes systems.

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Design Criteria and Goals

The design for this project shall address the following needs, goals and objectives:

- Install a compliant NFPA 13 system throughout.
- Add a fire pump to supply system.
- Connect system to City water.
- Add a fire pump rated enclosure within the building.

Space and Program Needs

A small riser room shall be installed at each floor lobby.

Site Improvements & Infrastructure

- New service line from city water south of building.

Utilities & Infrastructure

- No modifications expected.
- All utility or M/E system shutdowns or outages shall be planned well in advance, in collaboration with DSH and FS personnel, and others who may be affected.

Hazardous Materials

The KU Environmental Health & Safety Office will perform tests of existing materials which will be affected by the project work, in order to determine if they are asbestos-containing and to solicit proposals from abatement contractors.

KU's standard policy is to remove all hazardous materials when undertaking major renovations of existing buildings.

Code Requirements

- Codes currently used on KU projects include the following:
  - International Building Codes, 2006 edition.
  - Kansas Fire Prevention Code, KSFMO, current edition.
  - Other codes es listed at the State of Kansas, Office of Facilities & Procurement Management – Design, Construction & Compliance (OFPM-DCC) website.
  - Code Footprint for this project shall be prepared by DCM and DCM will submit the code footprint to OFPM for approval.
- Construction Exiting: Temporary fire-rated exit corridors shall be provided through the construction site, if required to protect and direct occupants from all required exits in the surrounding occupied existing buildings to a public way. They shall remain in-place at all times while construction work is underway.
- Fire elarm systems shall be modified consistent with current code and KU requirements for an intelligent addressable system.
- Project scope will include any code or ADA-related improvements that are required in order to complete the proposed scope of work, including required ADA path of travel improvements to primary function areas.

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Historic Preservation Reviews

The existing building is not located within 500 feet of any properties listed on the City, State or National Registers of Historic Places. The Kansas Legislature repealed the 500' historic environs review requirements in 2013. The City of Lawrence still requires environs reviews of properties within 250' of a property listed on the City's historic register, but reviews are only required if certain conditions are met. No environs reviews will be required for this project.

Annual Maintenance & Operating Costs

Funding for annual maintenance and operating costs will come from existing University resources. No new state funding will be required to cover any of these costs.

Space Standards & Utilization Analysis

This project consists of installing a fire sprinkler system in existing spaces within the building. As such, this project will not add any new usable space to the University's space inventory.

Space Summary

Existing Building	183,525 GSF

Design Standards / Consultant Services

The architectural/engineering (A/E) consultant shall comply with the latest provisions of the University of Kansas *Design and Construction Standards*, as maintained by the Office of Design and Construction Management (DCM), posted online at DCM's website at: http://www.dcm.ku.edu/standards

- The A/E consultant shall also comply with supplemental updates to these standards which may be issued during the course of the project.
- The A/E consultant shall comply with KU Audit and Strategic Sourcing guidelines, also posted at the DCM website.

- The Owner's Representative shall be a DCM staff person assigned to serve as KU's Project Manager, and who shall be the primary point of contact for all communications between the Owner, A/E and Contractor.
- The A/E consultant shall prepare performance specifications for the fire sprinkler system. The Contractor will prepare shop drawings.
- Electronic Files: The A/E consultant shall deliver to KU a complete set of electronic files for the fire sprinkler system performance specifications. The Contractor shall deliver to KU a complete set of electronic files for all shop drawings and as-built documents.
- Contracts: B101 Owner-Architect Contract for fire sprinkler system performance specifications professional services and KU Procurement Contract for Fire Alarm and Sprinkler Systems.

Proposed Construction Method

An expedited process utilizing an existing contract for fire sprinkler construction services.

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Project Budget

Construction Costs	
Fire Sprinkler system	923,000
Subtotal - Construction Costs	**$923,000**
Miscellaneous Costs	
Fees - Consultants, State & KU Agencies	110,000
Printing & Shipping of Bid Documents; Misc.	0
Asbestos & HazMat Abatement (scope TBD)	30,000
Construction Testing & M/E Commissioning	0
Bidding & Construction Contingency (7.3%)	97,000
Subtotal - Miscellanaous Costs	**$237,000**
Total Project Cost	**$1,160,000**

Notes:

1) Funding to be provided from KU Dept. of Student Housing.

Project Schedule

KU Capital Projects Council Review & Approval	Oct. 2013
KBOR Review & Approval	Oct. 2013
Legislative Jt. Comm. Review	Nov. 2013
A/E Selection	Nov. 2013
Negotiate Fees / Start Design	Nov. 2013
Submit Code Footprint (SD Submittal)	Nov. 2013
Code Footprint Approval	Nov. 2013
Complete CD's, submit for permit (5 mos.)	Dec. 2013
Receive Bids; Award Contract	Dec. 2013
Construction Starts	Dec. 2013
Construction Completion (6 Mos.)	Aug. 2014

Date: October 1, 2013